

**LETTER OF RECOMMENDATIONS FOR THE EXEMPTION FROM A PHASE 1
ARCHAEOLOGICAL AND HERITAGE INVESTIGATION:**

**PROPOSED BULK SEWER INFRASTRUCTURE AT RIDGEVIEW EXTENSIONS ON
THE PORTION 28 OF THE FARM VLAKFONTEIN 556IR, BALFOUR**

MPUMALANGA PROVINCE

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EXECUTIVE SUMMARY

The Department of Human Settlements is developing a low-cost housing project for Dipaliseng Local Municipality, known as Ridgeview Extensions. As part of the infrastructure, a sewerage pipeline has to be constructed, with a diameter of 360mm. The pipeline will approximately be 4.5km long. The bulk sewer line will be located on *portion 28 of the farm VLAKFONTEIN 556 IR*, near Balfour, in the Mpumalanga Province.

The study area is situated on topographical map 1:50 000, 2628DA. This area falls under the jurisdiction of the Dipaliseng Local Municipality and the Gert Sibande District Municipality. Sections surrounding the proposed bulk sewer pipeline have been transformed by human induced impacts such as road networks, existing pipeline infrastructure and mining activities. The area is currently used for cattle grazing by the rural community adjacent the proposed development. A large cemetery and a municipal landfill site is situated in the direct vicinity (west) but will not be impacted upon by the proposed development.

I recommend that the proposed pipeline project be exempted from a full phase 1 study: as

- the survey revealed no archaeological or historical remains in the study area which may be impacted upon by the proposed pipeline;
- A phase 1 archaeological impact assessment for the proposed Residential Township on *portion 28 of the farm VLAKFONTEIN 556 IR* was done in 2009/10 by Cultmatrix, and revealed no archaeological or historical remains on this farm;
- A deep trench (approximately 1500mm), was excavated (as a security measure by the neighbour) along the border fence of the farm, where the current proposed pipeline will be constructed;
- An existing pipeline has already been established to the left of the abovementioned trench and parallel to where the proposed bulk sewer line is proposed;
- The remaining sections of the pipeline will follow in road reserves (tarred and dirt roads in a residential area), which has also extensively been disturbed.

Further planning of the proposed project may continue, and no mitigation measures are needed for the proposed development with a condition that should any archaeological or human remains be observed during construction activities, a qualified archaeologist must be notified, and an assessment be done.

Disclaimer: *Although all possible care is taken to identify all sites of cultural significance during the investigation, it is possible that hidden or sub-surface sites could be overlooked during the study. Christine Rowe trading as Adansonia Heritage Consultants will not be held liable for such oversights or for costs incurred by the client as a result.*

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- 1) The results of the project;*
- 2) The technology described in any report;*
- 3) Recommendations delivered to the Client.*



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INTRODUCTION & DESCRIPTION

The proposed Balfour bulk sewer pipeline will be located on *portion 28 of the farm VLAKFONTEIN 556 IR*, near Balfour, Mpumalanga Province. The aim of the Department of Human Settlements is to develop a low-cost housing project, known as Ridgeview Extensions. As part of the infrastructure, a sewerage pipeline must be constructed, with a diameter of 360mm. The pipeline will approximately be 4.5km in length (see Map 2). AFRIKA ENVIRO & BIOLOGY was appointed by ENDECON UBUNTU (Pty) Ltd Engineering Consultants on behalf of the Department of Human Settlements, to conduct the necessary environmental assessment for the project.¹

The area intended for the proposed bulk sewer pipeline is under the jurisdiction of Dipaliseng Local Municipality and Gert Sibande District Municipality, and currently zoned as residential.²

- **Terms of reference:** AFRIKA ENVIRO & BIOLOGY appointed Adansonia Heritage Consultants to assess the proposed pipeline route. As specified by section 38 (3) of the NHRA, the investigation focused on the identification and mapping of heritage resources; the assessment, description and evaluation of possible archaeological and heritage sites, the potential impact of the development and to make recommendations to minimize possible damage to such sites.
- **Legal requirements:**
The legal context of the report is grounded in the National Heritage Resources Act no 25, 1999, as well as the National Environmental Management Act (1998) (NEMA, as amended).

SCOPE AND LIMITATIONS

The investigation provided the opportunity to examine the route of the proposed pipeline from the connection point of the existing outfall sewer line (Balfour inlet works -west), to the sewer pump station in the east (see Map 4). The bulk sewer pipeline will approximately be 4.5km long (see Map 4 – Layout of pipeline route). The area has already been transformed by agricultural fields, a road network for the Ridgeview Township (fig. 18), an existing pipeline infrastructure (fig. 1 & 2), as well as a deep trench along the border of the adjacent farm (see Maps 2 & 4, figs. 3, 4, 6, 7 & 8). In the western section, the pipeline will be situated in road reserves of the residential area (figs. 10, 11, 12 & 13). Locals use the study area mainly to graze cattle. A

¹ Personal Communication: Danie Van Der Walt, 2018-03-20.

² Personal Communication: Danie Van Der Walt, 2018-03-23.

large cemetery as well as the Balfour landfill site (Fig. 19 & 20) is close to the proposed pipeline, but those will not be impacted upon by the proposed development.

The largest section of the study area consists of open grassland or classified as Rocky Highveld Grassland (see Appendix 1). The soil types vary from sandy-loam to red sandy-clay or yellow apedal soils. The valley lowland is characterised by blackish grey soils with a high clay content (figs. 2 & 17).³ General visibility was good as the grassland vegetation was short, and no limitations were experienced (see Appendix 1). The natural habitat in the direct study area was degraded as a result of the above mentioned human impacts (a deep trench, 1500mm deep in places, as well as an existing pipeline infrastructure (fig. 1, 2, 3, 4, 6, 7 & 8).

METHODOLOGY

The investigation was conducted on foot and per vehicle by two people, and standard archaeological and recording methods were applied (Map 2, proposed line – red - was followed, & Appendix 1). A survey of literature was done to obtain information about the archaeology and cultural heritage of the area. There are no museums in Balfour or near the study area which could be consulted, and no historical information was available at the municipality. The author relied on aerial images to assemble background information. The layout of the area was plotted with a GPS (Garmin model: etrex). A digital photographic recording method was used.

The SAHRA database for archaeological and historical impact assessments was consulted and revealed the following Impact assessment reports for the Balfour area:

- J. Van Der Walt: 2003: *Letter of Exemption for the Grootvlei-Balfour Powerline, Balfour, Mpumalanga;*
- J. Van Der Walt: 2009: *AIA of Area 2 of the Burnstone Gold Mine Project, Balfour, Mpumalanga;*
- J. Van Der Walt: 2009: *HIA for proposed Coal Mining activities on the farm Vlakfontein 569 JR, Mpumalanga Province;*
- CULTMATRIX, 2009/2010: *HIA for REC (Pty) Ltd., Draft EIA Report for the proposed establishment of a residential Township: Portion 28, Vlakfontein 556 IR, Balfour, Mpumalanga - a historical homestead was identified, and mitigations measures were proposed.*

³ REC (Pty) Ltd., Draft EIA Report for the proposed establishment of a residential Township: Portion 28, Vlakfontein 556 IR, Balfour, Mpumalanga, pp. 17 – 28.

The reports revealed graves and cemeteries, historical dry stonewall foundations, and a rectangular dry stonewall structure, possibly a cattle kraal.

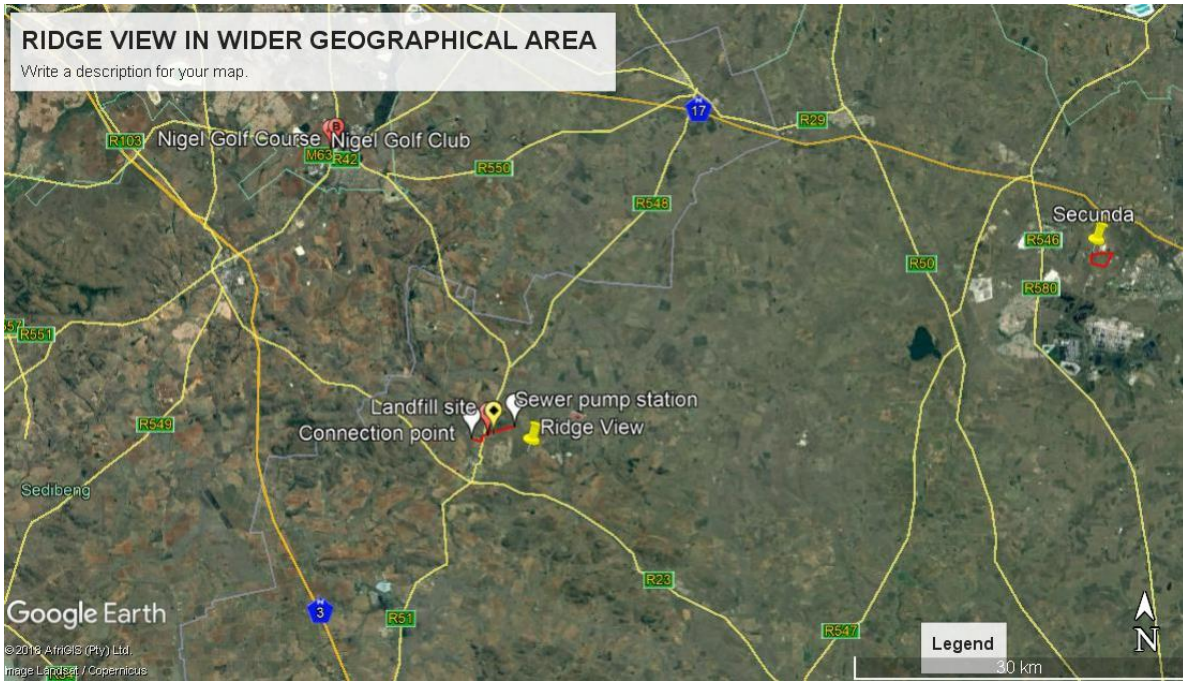
INVESTIGATION

Most of the study area is covered by open grassland with a rocky ridge close to the eastern section. As mentioned above, the route of the proposed pipeline had been transformed by human induced impacts such as a deep trench (approximately 1500mm deep) which was established on the border of the two properties as a security measure. This trench revealed no archaeological material in the deposit and nothing was noticed in the material above surface (fig. 17). An existing pipeline had been established on the route where the proposed bulk sewer pipeline will be established (fig. 1 & 2). Further evidence of disturbances show that drilling activities for mining has taken place in the ridge section, as core samples were identified in the near vicinity of the proposed route (fig. 16). In the western section, the pipeline will follow along a dirt road as well as tarred road, within the road reserves. These areas are already disturbed extensively (figs. 10, 11, 12, tarred road, & 13, dirt road sections).

The community is currently using the area to graze cattle. Mr Mpiyake Mnisi who was tending cattle at the time of the survey, was interviewed. He was born in this area and looks after his cattle on this property on a daily basis. He confirmed that there were no grave sites (apart from the large cemetery in the western section), or any archaeological or historical features in the study area.⁴

Google imagery from 2005 show that the area was used for various purposes - from the connection point in the west to the position of the new pump station in the east. Land uses include agriculture, quarries, a large cemetery in west before the tarred road and a landfill site which was fenced in before 2016 (fig. 8 & 20). No archaeological sites or material was found during the survey in the route of the proposed pipeline. It is unlikely that any archaeological or heritage remains of any value will be found *in situ* or will be exposed during the construction of the pipeline.

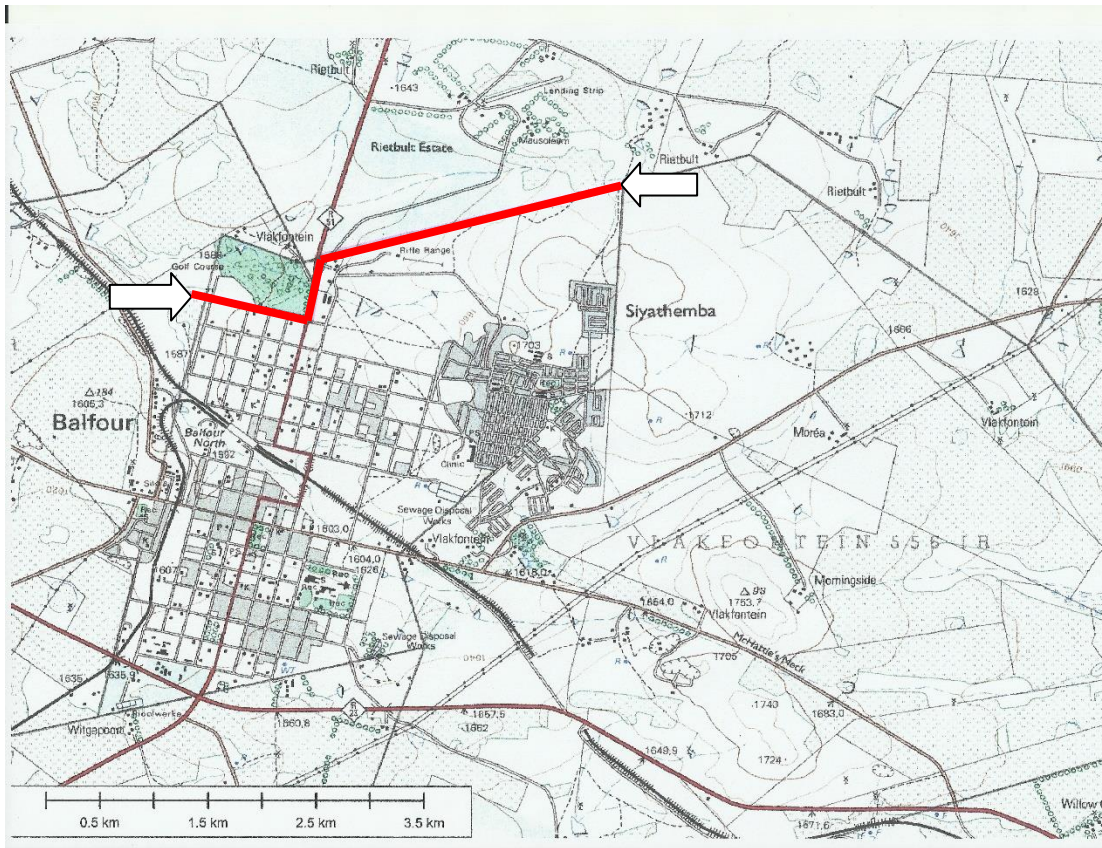
⁴ Personal Communication: Mr. Mpiyake Mnisi, 20 March 2018.



MAP 1: The study area (Ridgeview), within the wider geographical area.



MAP 2: The route of the pipeline (red) was investigated on foot and per vehicle. Please note the road network in the east (near the proposed Pump Station), for the Ridgeview development, and existing stands in the west (near the connection point into the existing Balfour sewer line).



MAP 3: 1:50 000 Topographical map 2628DA. The red line indicates the extent of the proposed Balfour bulk sewer pipeline from the connection point in the west, to the proposed pump station in the east (between the two arrows).

ARCHAEOLOGICAL BACKGROUND

In order to place the proposed development site in archaeological context, primary and secondary sources were consulted. Ethnographical and linguistic studies by early researchers such as Ziervogel, Theal and Van Warmelo shed light on cultural groups living in the area since ca 1400.

There are currently no museums in the area which could be consulted, and no substantial historical information was available at the municipality or information centre. The topographical map 2628DA, revealed no features of significance. Visibility during the survey was good. (see Appendix 1 for Photographs & Maps 2 - 4).

San rock art occurs in the wider area towards Heidelberg and Chrissiesmeer, but no rock paintings or engravings are documented close to the study area.⁵ The author has recorded several rock paintings in the Lochiel, Lothair and Amsterdam areas and visited a few in the Chrissiesmeer and Piet Retief areas.⁶

Very little contemporary research has been done on prehistoric African settlements in the study area. No Early or Later Iron Age sites were recorded.⁷ The SAHRA database was consulted and a few Specialists AIA reports revealed no significant archaeological (Stone Age or Iron Age) sites.

Archaeological surveys by heritage practitioners in the immediate and wider area revealed mostly burial sites and historic features. It is necessary to include background information with regards to an archaeological and historical nature of the wider area.

STONE AGE

The Stone Age is the period in human history when people produced stone tools. The Stone Age in South Africa can be divided in three periods:

Early Stone Age (ESA): +- 2 million – 150 000 years ago;

Middle Stone Age (MSA): +- 150 000 – 30 000 years ago;

Later Stone Age (LSA): +- 40 000 – 1850AD.

IRON AGE

The Iron Age is the period in time when humans manufactured metal artifacts. According to Van der Ryst & Meyer,⁸ it can be divided in two separate phases, namely:

Early Iron Age (EIA) +- 200 – 1000 AD;

Late Iron Age (LIA) +- 1000 – 1850 AD.

Early, Middle and Later Stone Age sites are recorded between Johannesburg and Brits, but none was indicated in the historical atlas by Bergh near the study area.⁹ The closest occurrences in the study area, are an excavated site by the National Cultural History Museum (2003KH30), on the farm Rietfontein 101JS, close to Witbank (Emalahleni). No Iron Age features were identified on the study area in this report.

⁵ J.S. Bergh, *Geskiedenis Atlas van Suid-Afrika Die Vier Noordelike Provinsies*, p. 4.

⁶ C. Rowe, *Archaeological Impact Assessment of Rock Art Sites, Lochiel area*, 2012.

⁷ J.S. Bergh, *Geskiedenis Atlas van Suid-Afrika Die Vier Noordelike Provinsies*, pp. 4-7.

⁸ Van der Ryst, M.M. & Meyer, A, *Die Ystertydperk in Geskiedenis Atlas van Suid-Afrika Die Vier Noordelike Provinsies*, pp. 96 – 98.

⁹ J.S. Bergh, *Geskiedenis Atlas van Suid-Afrika Die Vier Noordelike Provinsies*, p. 4.

PRE-COLONIAL HISTORY

The Balfour area was sparsely populated in the 19th century, and although Bergh¹⁰ indicated no black groups in the area, ethnographical and linguistic studies by early researchers such as D. Ziervogel and N.J. Van Warmelo, revealed that the study area was inhabited by mainly Ndebele.¹¹ Bergh¹² does not indicate any cultural groups specific to the Balfour area, but indicated that the Ndzundza Ndebele migrated through this section during the *difaqane* – a period of widespread chaos and warfare among indigenous ethnic communities in southern Africa during the period between 1815 and approximately 1840.

Surrounding areas from Middelburg, Pretoria and Johannesburg were mainly inhabited by the Ndebele. Ethnographical and linguistic studies by early researchers such as D. Ziervogel and N.J. Van Warmelo, does not include the Balfour area. It is however accepted that the *Ndzundza* Ndebele, was the dominant group as they do occur extensively in the surrounding areas since the 18th century,¹³ and the current local inhabitants consist of various groups including mainly South Ndebele, Sotho and Zulu.

• HISTORY OF BALFOUR

Balfour is a small gold mining and maize farming town in Mpumalanga. The town is some 80 km southeast of Johannesburg and was originally established on the farms Vlakfontein No. 101 and No. 108. The farms were initially owned by Frederick Stuart McHattie, and were named McHattiesburg after him in 1897. On 16 February 1898 the town was proclaimed and renamed to Balfour (15 February 1905), after Arthur James Balfour, the then Prime Minister of Great Britain (1902-1905), who visited South Africa in that year.¹⁴

LOCALITY

The proposed Balfour bulk sewer pipeline is located on *portion 28 of the farm VLAKFONTEIN 556 IR*, Balfour, in the Dipaliseng Local Municipality (see co-ordinates below). The study area falls within the Gert Sibande District Municipality (see Map 4: Layout of proposed pipeline).

¹⁰ Van der Ryst, M.M., & Meyer, A, Die Ystertydperk in *Geskiedenis Atlas van Suid-Afrika Die Vier Noordelike Provinsies*, p.10.

¹¹ N.J. Van Warmelo, *A preliminary Survey of the Bantu Tribes of South Africa*, p. 18.

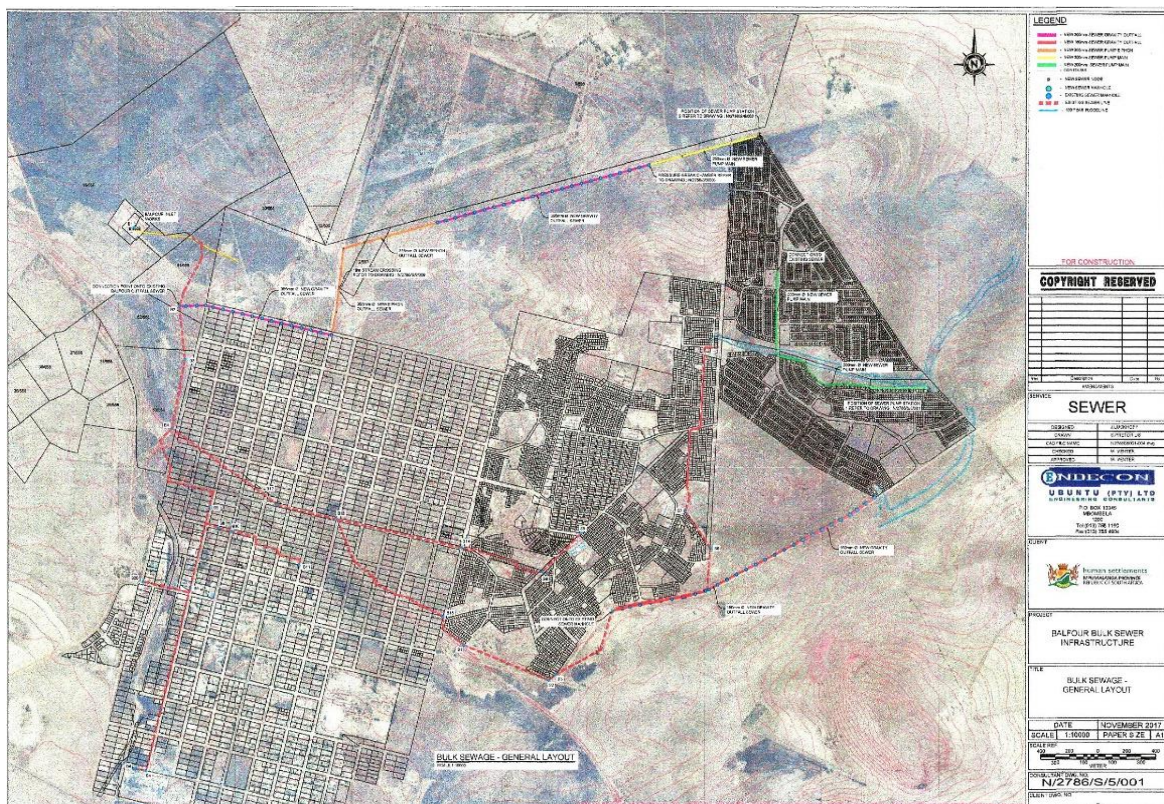
¹² J.S. Bergh, *Geskiedenis Atlas van Suid-Afrika Die Vier Noordelike Provinsies*, p. 4.

¹³ N.J. Van Warmelo, *A preliminary Survey of the Bantu Tribes of South Africa*, p. 18.

¹⁴ Internet access: https://en.wikipedia.org/wiki/Balfour,_Mpumalanga, 2018-03-23.

GPS co-ordinates (see Maps 1 - 4, Topographic & Google images of study area & Appendix 1).

GPS Co-ordinates			
Study area	South	East	Elevation
West: Connection with existing sewer line	S 26° 38' 27.69"	E 28° 35' 02.46"	1596m
West to East: Along dirt road to tarred road	S 26° 38' 34.60"	E 28° 35' 36.58"	1621m
South to North: Along tarred road to point where it changes direction	S 26° 38' 15.18"	E 28° 35' 39.85"	1615m
West to East: Along border fence to proposed Sewer Pump station	S 26° 37' 49.88"	E 28° 37' 22.52"	1655m



MAP 4: Layout of the proposed pipeline (Map provided by AFRIKA ENVIRO & BIOLOGY).

FINDING & RECOMMENDATIONS

The route where the pipeline is proposed has entirely been disturbed. No archaeological sites, material or graves were found during the survey and it is believed that the construction of the proposed bulk sewer pipeline will have no impact on any archaeological or historical heritage resources (see below).

Adansonia Heritage Consultants have no compelling reasons to stop the proposed development, and recommend that the proposed pipeline project be exempted from a full phase 1 study. Further motivation is as follows:

- the survey revealed no archaeological or historical remains within the study area which may be impacted upon by the proposed pipeline;
- A phase 1 archaeological impact assessment for the proposed Residential Township on *portion 28 of the farm VLAKFONTEIN 556 IR* was done in 2009/10 by Cultmatrix, and revealed no archaeological or historical remains on this farm;
- A deep trench (approximately 1500mm), was excavated (as a security measure by the neighbour) along the border fence of the farm, where the current proposed pipeline will be constructed;
- An existing pipeline infrastructure has already been established to the left of the abovementioned trench and where the proposed bulk sewer line is proposed;
- The remaining sections of the pipeline will follow in road reserves (tared and dirt roads in a residential area), which has also extensively been disturbed.

MITIGATION

Further planning of the proposed project may continue, and no mitigation measures are needed for the development, with the condition that should any archaeological (clay or ceramic pottery etc.), or human remains be observed during construction, a qualified archaeologist be notified, and an assessment be done. Archaeological material or graves are not always visible during a field survey and therefore some significant material may only be revealed during construction activities. Further research might be necessary in this regard for which the developer is responsible.

Adansonia Heritage Consultants cannot be held responsible for any archaeological material or graves which were not located during the survey.

REFERENCES

NATIONAL LEGISLATION

- Republic of South Africa, *National Heritage Resources Act*, (Act No. 25 of 1999).

LITERARY SOURCES

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- ZIERVOGEL, D. *The Eastern Sotho: A Tribal, Historical and Linguistic Survey with Ethnographical notes on the Pai, Kutswe and Pulana Bantu Tribes*. Pretoria, 1953.

ELECTRONIC INFORMATION SOURCES

- Internet access: [https://en.wikipedia.org/wiki/Balfour, Mpumalanga](https://en.wikipedia.org/wiki/Balfour,_Mpumalanga), 2018-03-23.

PERSONAL INFORMATION

- Personal Communication: Danie Van Der Walt, 20 March 2018.
- Personal Communication: Mr. Mpiyake Mnisi, 20 March 2018.

MISCELLANEOUS

- Rock Environmental Consulting (Pty) Ltd., Draft EIA Report for the proposed establishment of a residential Township: Portion 28, Vlaktefontein 556 IR, Balfour, Mpumalanga, 2015.

APPENDIX 1

PHOTOGRAPHIC DOCUMENTATION: BALFOUR BULK SEWER INFRASTRUCTURE

RIDGE VIEW



Fig. 1: A general view of the study area facing west. Some infrastructure has already been established for the Ridgeview development such as pipelines (arrows indicate the manholes), and a road network (see Fig. 18).



Fig. 2: The view facing west from the site of the proposed Pump station towards the ridge (see arrow). The border fence, trench and manholes of a pipeline is visible. The proposed bulk sewer line will be established parallel to the fence and the existing pipeline.



Fig. 3: View from the ridge (facing east) towards where the pump station will be established (see arrow).



Fig. 4: View towards ridge (facing west). The trench and fence are visible to the right.



Fig. 5: General view towards the ridge (facing east).



Fig. 6: The excavated trench along the border where the pipeline route is proposed, is visible in front of the treeline (see arrow), (view facing north).



Fig. 7: The view from the landfill site facing east towards the ridge.



Fig. 8: The concrete fence of the landfill site is visible to the south of the trench (facing west), with the border fence to the right (north).



Fig. 9: The pipeline route facing east at the point where it changes direction from the south (at the tarred road, figs. 10 & 11), to east where the dirt road starts. The proposed line will be adjacent the fence.



Fig. 10: The pipeline route will follow within the road reserve to the left or north of the tarred road.



Fig. 11: The same tarred road (facing north) where the pipeline route is proposed.



Fig. 12: The point where the pipeline will connect with the tarred road from the dirt road (west), cross it, and change direction (from here it will turn north to follow along the tarred road, fig. 10 & 11).



Fig. 13: The pipeline route will follow within the road reserve (facing east), to the south (or right) of the dirt road, where it will connect at the tarred road (fig. 12).



Fig. 14: The inlet point (see arrow, & fig. 15), is situated in a previous cultivated field.



Fig. 15: The inlet or connection point, where the proposed pipeline will connect with the existing sewer line.



Fig. 16: Core samples from drilling activities (mining) were observed in the ridge section.



Fig. 17: Soil from the trench was piled up on the south side of the fence. The soil has a coarse and flaky texture, and revealed no archaeological material of any kind.



Fig. 18: A road network and pipelines are already in place for the Ridgeview development (photo facing east from the ridge, also see Map 2).



Fig. 19: A large cemetery is situated in the west near the tarred road (see Map 2).



Fig. 20: The Balfour landfill site is situated next to the cemetery in the west near the tarred road (see Map 2).