

**BHOKWE COMMUNITY SANITATION PROJECT
ABAQULUSI LOCAL MUNICIPALITY
KWAZULU-NATAL**

Phase 1 Heritage Impact Assessment

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**FOR: 1World Consultants
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EXECUTIVE SUMMARY

The sewer system in Bhokwe consists of flushing toilets connected to a shallow sewer reticulation system that discharges into a common conservancy tank. There are two conservancy tanks in the ward, one servicing Bhokwe quarters and the other servicing Bhokwe hostels. The rest of the villages under Bhokwe settlements use VIP toilets. The municipal staff and community that are close to the wastewater treatment plant (WWTP) are exposed to health hazards due to the condition of the WWTP. The Bhokwe community requires the rehabilitation of the sanitation systems in the settlement, which is characterized by frequent bursts, blockages and overflows resulting in a health hazard to the community.

The project consists of the construction of 2.2 km of 160mmØ uPVC sewer reticulation, 90 m of 250mmØ uPVC sewer reticulation, an oxidation sewer pond and numerous 1000mmØ precast concrete ring manholes.

The length of the pipeline is 2.2 km in length hence it triggers section 41 (1)(a) of the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018) which refers to the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length. In addition, the pond/s comprising the waste water treatment system are 11 812m² in size hence triggering section 41 (1)(c)(i) of the same Act that refers to any development or other activity which will change the character of a site exceeding 5 000m².

Bhokwe village is situated very close to the Natal Anthracite Mine which was situated at the base of the Ngwibi / Bhokwe Mountain that looms above the village. It is surrounded by various other mines including the now defunct Enyati Anthracite Mine and is situated approximately 38 km south east of the town of Vryheid in KwaZulu-Natal.

An inspection of the project area was undertaken on 02 July 2019. Visibility was good and the specialist spoke to several residents in terms of the presence of heritage resources.

The pipeline and components of the water treatment system were inspected on foot. Many buildings within the village have been dismantled with only the foundations and some walls remaining. Some of the existing buildings could be older than 60 years but will not be impacted by the proposed development. The areas where the pipeline has been laid and is to be laid is disturbed by roads and residential activity.

Residents told the specialist that the Municipality did not want burials within the village and the residents use a cemetery situated some distance from the village to bury their dead.

The section of pipeline that has already been laid was inspected. The associated infrastructure for the sanitation and water project were clearly visible and much of the pipeline runs along the road before entering properties. No heritage resources were to be impacted along the sections of laid pipeline.

The elevated section of steel pipe was inspected and the remains of structures were found. However, no heritage resources were found along this section.

Many of the structures located above the elevated pipeline against the mountain have been demolished. These were the compounds or hostels in which workers lived and in which some people currently live. There are seven hostels consisting of up to 20 rooms or more in each hostel. Some of the roofs have been removed as well as windows and in others some of the rooms have been left intact. The age of the hostels could not be ascertained. Although the mine was acquired by Anglo-American in the early seventies, the mine may have been in operation prior to this. The pipeline alignment is situated between the hostels and should not impact on the buildings.

According to the South African fossil sensitivity map, the proposed Bhokwe sanitation project falls within an area of very high fossil sensitivity. An area of very high fossil sensitivity requires a field assessment; however, because the area is disturbed by residential and mining activity as well as the laying of infrastructure, it is recommended that a desktop palaeontological study is undertaken to assess the significance of impact of the sanitation project on fossil resources in the area and to recommend the way forward.

The desktop palaeontological study revealed that the proposed site lies on the non-fossiliferous dolerite dykes of Jurassic age (higher altitude), and the shales of the early Permian Vryheid Formation (Ecca Group). The latter could potentially contain fossil plant impressions of the *Glossopteris* flora, but only below ground and not in the village or the soils of the ploughed field (site for sewer oxidation tanks) Since there is a small chance that fossils could be discovered once excavations commence, a Fossil Chance Find Protocol should be added to the Environmental Management Programme and no site visit is required by a palaeontologist unless fossils are found during the project.

Some of the pipelines could run close to structures that could be older than 60 years. Structures over 60 years are protected by section 37 (1)(a) of the Amafa and Research Institute Act (2018), which states that no structure which is, or which may reasonably be expected to be older than 60

years, may be demolished, altered or added to without prior written approval of the Institute having been obtained. It is therefore recommended that the pipelines avoid impacting on structures.

If the recommendations and mitigation measures provided in this report are implemented and adhered to, then the construction of the Bhokwe community sanitation project may proceed from a heritage perspective.

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I, **Jean Lois Beater**, act as an independent specialist for this project and I do not have any vested interest either business, financial, personal or other, in the proposed activity other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014.

SPECIALIST DETAILS

Name	Qualification	Professional Registration
Jean Beater	MA (Heritage Studies) MSc (Environmental Management)	Member of Association of South African Professional Archaeologists (No. 349) Member of IAIAAsa (No. 1538)

1. INTRODUCTION

The sewer system in Bhokwe consists of flushing toilets connected to a shallow sewer reticulation system that discharges into a common conservancy tank. There are two conservancy tanks in the ward, one servicing Bhokwe quarters and the other servicing Bhokwe hostels. The rest of the villages under Bhokwe settlements use VIP toilets. The municipal staff and community that are close to the wastewater treatment plant (WWTP) are exposed to health hazards due to the condition of the WWTP. The Bhokwe community requires the rehabilitation of the sanitation system in the settlement, as it is characterized by frequent bursts, blockages and overflows resulting in a health hazard to the community (1World Consultants 2019:1).

Ukuza Consultants (on behalf of the Municipal Infrastructure Support Agent – MISA) proposes the construction of 2.2 km of 160mmØ uPVC sewer reticulation, 90 m of 250mmØ uPVC sewer reticulation, an oxidation sewer pond and numerous 1000mmØ precast concrete ring manholes, in Bhokwe community, Ward 05 of the AbaQulusi Municipality, KwaZulu-Natal (KZN) (1World Consultants 2019:1).

The footprint of the oxidation sewer pond from edge of bank to edge of bank is 11 812m² or 1.18 ha. In order to cross the valley, an elevated section of steel pipe will be constructed that will be about 70m long. It should be noted that approximately 1.6m of the pipeline has already been laid; however, the specialist was requested to inspect the laid pipeline to ensure that no heritage resources had been impacted.

This is the Phase 1 Heritage Impact Assessment (HIA) report for the proposed Bhokwe community sanitation project.

2. LEGISLATIVE BACKGROUND

The length of the pipeline is 2.2 km in length hence it triggers section 41 (1)(a) of the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018) which lists developments or activities that may require an HIA. The relevant section of the Act refers to the following development: *“the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length”*.

In addition, the ponds comprising the waste water treatment system are 11 812m² in size hence triggering section 41 (1)(c)(i) of the same Act that refers to *any development or other activity which will change the character of a site exceeding 5 000m²*.

In addition, the proposed project may impact on graves, structures, archaeological and palaeontological resources that are protected in terms of sections 37, 38, 39, and 40 of the KwaZulu-Natal Amafa and Research Institute Act, 2018.

In terms of section 3 of the NHRA, heritage resources are:

- (a) places, buildings, structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and paleontological sites;
- (g) graves and burial grounds, including—
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;
 - (iv) graves of individuals designated by the Minister by notice in the *Gazette*;
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- (h) of significance relating to the history of slavery in South Africa;
- (i) movable objects, including:
 - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - (ii) objects to which oral traditions are attached or which are associated with living heritage;
 - (iii) ethnographic art and objects;
 - (iv) military objects;
 - (v) objects of decorative or fine art;
 - (vi) objects of scientific or technological interest; and
 - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

3. LOCATION

Bhokwe village is situated very close to the Natal Anthracite Mine which was situated at the base of the Ngwibi / Bhokwe Mountain that looms above the village. It is surrounded by various other mines including the now defunct Enyati Anthracite Mine as depicted on a segment of the 1:50 000 map (2731CC) in **Figure 1**. It is situated approximately 38 km south east of the town of Vryheid (see **Figure 2** below). The proposed layout of the Bhokwe community sanitation project (outlined in orange) is provided in **Figure 3**.

4. TERMS OF REFERENCE

Undertake a Phase 1 Heritage Impact Assessment in order to determine the possible existence of heritage resources, as listed above, that could be impacted by the proposed sanitation project. Provide mitigation measures to limit or avoid the impact of the proposed project on heritage resources (if any).

Submit the HIA report to the provincial heritage resources authority, namely the KwaZulu-Natal Amafa and Research Institute (hereafter, referred to as the Institute), for the Institute's assessment and comment.

5. METHODOLOGY

A survey of literature, including other heritage impact assessment reports completed for the larger area, was undertaken in order to ascertain the history of the area and what type of heritage resources have or may be found in the area of development.

An inspection of the project area was undertaken on 02 July 2019. Visibility was good and the specialist spoke to several residents in terms of the presence of heritage resources.

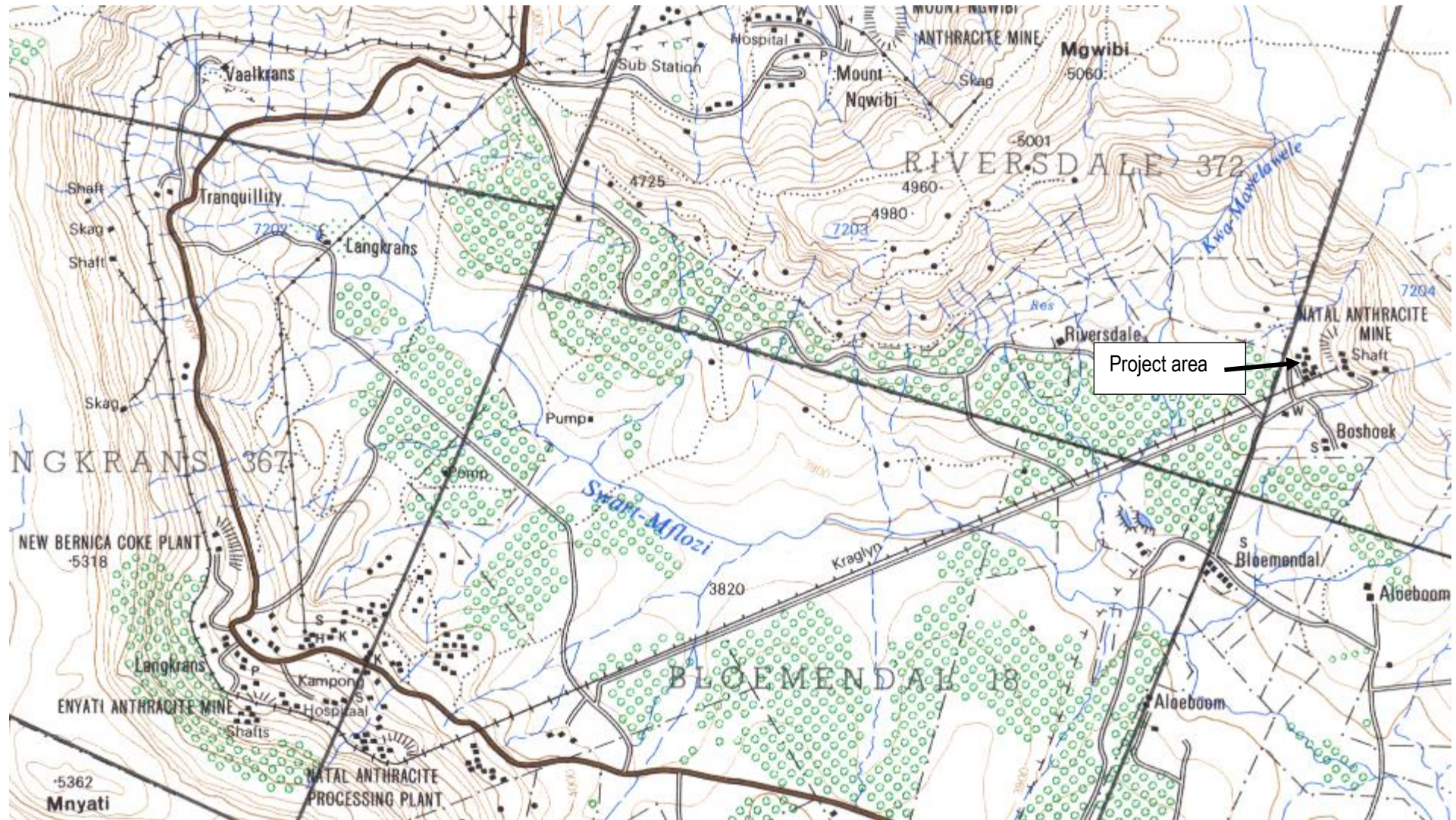


Figure 1: Project area surrounded by mines



Figure 2: Location of project area in relation to surrounding area



Figure 3: Project layout indicated in orange with ponds in foreground

6. HISTORICAL BACKGROUND OF AREA

Portions of the greater Vryheid and Nqutu areas have been systematically surveyed for archaeological in the past. Sixty archaeological sites are recorded that include fourteen Early Stone Age sites, eight Middle Stone Age sites, ten Later Stone Age sites, three rock painting sites, and forty Later Iron Age sites. The majority of the Early Stone Age sites occur in open air context in large dongas. Middle and Later Stone Age sites occur in context in four rock shelters. The majority of the known Later Iron Age sites are situated to the south east of Nqutu some distance from the project area. Around 800 years ago, Bantu-speaking farmers settled in the greater Vryheid area and with the expansion of the Zulu kingdom of King Shaka in the early 1820's the wider area became incorporated into his kingdom (Active Heritage 2014:2-3).

During the Anglo-Zulu War of 1879, the surrounding area saw action with the battle of Hlobane taking place on 28 March 1879 during which the British were defeated by the Zulu army. During the Anglo-Boer War of 1899-1902, the immediate project area saw action on Bhokwe mountain. In March 1901, it was held by the Vryheid Boer commando and during the Boers second invasion of Natal, Commandant-General Louis Botha concentrated his forces on the mountain in October 1901 and rested for there for three days before leaving on 5 October 1901 (Jones and Jones 1999:27).

Hancox and Gotz (2014:86) have indicated that whilst never being the largest producers by tonnage, the coalfields of KZN have historically played an important role in the coal industry of South Africa for the high quality of the coals produced. Historically the Vryheid Coalfield was an important producer of high-quality coking coal and anthracite, producing the highest quality anthracite in South Africa. The coalfield has been extensively mined. The earliest recorded commercial exploitation in the Vryheid Coalfield was in 1898, with coal being mined from the Hlobane and Zuinguin mountains. The rail line only reached Vryheid in 1906 and it took the creation of a branch line in 1908 to open up the development of the Hlobane coal mining sector.

In the early seventies, the Anglo-American Corporation acquired the Enyati and Natal Anthracite Collieries, which were located in the Enyati and Ngwibi mountains in the Vryheid district. Since then most of the production came from Natal Anthracite Colliery until it ceased production at the end of March 1992. Natal Anthracite provided direct employment for up to a 1000 people over a period of 50 years.

7. RESULT OF SITE INSPECTION

The pipeline and components of the water treatment system were inspected on foot. Many buildings within the village have been dismantled with only the foundations and some walls remaining. A resident told the specialist that when the mine ceased production, the owner, Anglo-American, dismantled the buildings and took useful building material with them. Some of the existing buildings could be older than 60 years but will not be impacted by the proposed development. The areas where the pipeline has been laid and is to be laid is disturbed by roads and residential activity.

Two residents told the specialist that the Municipality did not want burials within the village and the residents use a cemetery situated a distance from the village to bury their dead.

The section of pipeline that has already been laid was inspected as well as trenches that had already been dug but not used as yet. The associated infrastructure for the sanitation and water project were clearly visible including yellow markers indicating the alignment of pipelines. Much of the pipeline runs along the road before entering properties. No impacted heritage resources were found along the sections of laid pipeline.



Figure 4: Section of laid pipeline with infrastructure in background



Figure 5: Dug section entering property from road



Figure 6: Remains of structure

There will be an elevated section of steel pipe about 70m long where a gravity sewer pipeline will cross a valley. This area was inspected and the remains of structures were found. The area is very wet either due to a spring or wetland. No heritage resources were found along this section.

Most of the structures located above the elevated pipeline section against the mountain have been demolished. These were the compounds or hostels in which workers lived and in which some people currently live. There are seven hostels consisting of up to 20 rooms or more in each hostel. Some of the roofs have been removed as well as windows and in others some of the rooms have been left intact (see **Figures 7 - 10** below).

The age of the hostels could not be ascertained. Although the mine was acquired by Anglo-American in the early seventies (see **Chapter 6** above), it may have been in operation prior to this. The pipeline alignment is situated between the buildings and should not impact on them.

According to Guest (1988, 50), housing provided for black labourers, who always constituted the majority of the work-force on mines, was primitive. Apart from the family accommodation which married employees were encouraged to construct for themselves with whatever materials were available, Natal's collieries were characterized by grim compounds for the migrant males who considerably outnumbered the married men living more or less permanently on mine properties.



Figure 7: Closer view of elevated section and compounds



Figure 8: Remains of compound



Figure 9: Section of intact compound and remains of demolished section



Figure 10: Interior of room within compound



Figure 11: View of pipeline route showing new man-holes

The area where the conventional pond system for wastewater treatment will be located in on an area that has been previously terraced either for agricultural or mining activities and can be clearly seen on **Figure 3** above. The area was inspected and no heritage resources were found during the inspection.



Figure 12: View across area identified for waste water treatment system



Figure 13: View looking north across waste water treatment system

According to the South African fossil sensitivity map, the proposed Bhokwe sanitation project falls within an area of very high fossil sensitivity as indicated by the red colour in **Figure 14** below. This is unsurprising as coal is fossilised plant material.

An area of very high fossil sensitivity requires a field assessment; however, because the area is disturbed by residential and mining activity as well as the laying of infrastructure, it is recommended that a desktop palaeontological study is undertaken to assess the significance of impact of the sanitation project on fossil resources in the area and to recommend the way forward.

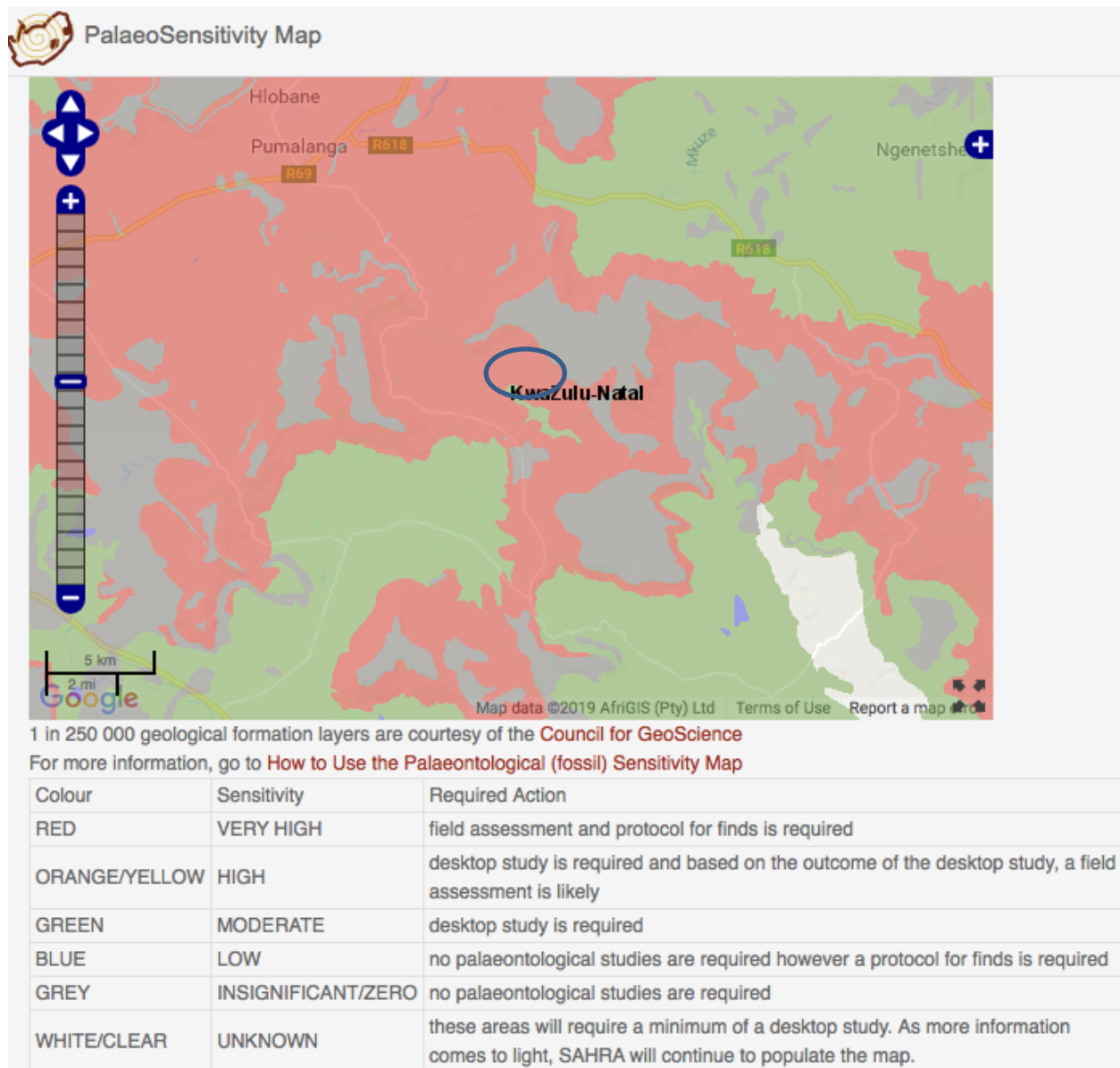


Figure 14: Fossil sensitivity of project area indicated by blue oval

The desktop palaeontological study revealed that the proposed site lies on the non-fossiliferous dolerite dykes of Jurassic age (higher altitude), and the shales of the early Permian Vryheid Formation (Ecca Group). The latter could potentially contain fossil plant impressions of the *Glossopteris* flora, but only below ground and not in the village or the soils of the ploughed field (site for sewer oxidation tanks) Since there is a small chance that fossils could be discovered once excavations commence, a Fossil Chance Find Protocol should be added to the Environmental Management Programme (EMPr) and no site visit is required by a palaeontologist unless the geologist or responsible person discovers fossils.

8. RECOMMENDATIONS AND CONCLUSION

Some alignments of the pipelines that comprise the sanitation project could run close to structures that could be older than 60 years. Structures over 60 years are protected by section 37 (1)(a) of the Amafa and Research Institute Act (2018), which states that no structure which is, or which may reasonably be expected to be older than 60 years, may be demolished, altered or added to without prior written approval of the Institute having been obtained on written application to the Institute. It is therefore recommended that the pipeline alignments avoid impacting on structures.

A Fossil Chance Find Protocol, as included in Chapter 8 of the desktop palaeontological study, must be added to the (EMPr).

If the recommendations and mitigation measures provided in this report and that of the desktop palaeontological study are implemented and adhered to, then the construction of the Bhokwe sanitation project may proceed from a heritage perspective.

9. ADDITIONAL MITIGATION MEASURES

- Workers should be made aware of the types of heritage resources, such as protected structures, that could be impacted by the construction of the sanitation project.
- For any chance heritage finds (graves, etc.), all work must cease in the area affected and the Contractor must immediately inform the Project Manager. A registered heritage specialist must be called to site to inspect the finding/s. The relevant heritage resource agency (the Institute) must be informed about the finding/s.
- The heritage specialist will assess the significance of the resource and provide guidance on the way forward.

- Permits must be obtained from the Institute if heritage resources are to be removed, destroyed or altered.
- Under no circumstances may any heritage material be destroyed or removed from the project site unless under direction of a heritage specialist.
- Should any recent remains be found on site that could potentially be human remains, the South African Police Service as well as the Institute must be contacted. No SAPS official may remove remains (recent or not) until the correct permit/s have been obtained.

10. REFERENCES

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Active Heritage. 2014. *Phase One Heritage Impact Assessment of the proposed coal-link, Nzalo (Mqabe) near Vryheid, KZN*.

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