DESKTOP PALAEONTOLOGICAL IMPACT ASSESSMENT

Lebaleng Extension 6 Township development in Maquassi Hills Local Municipality

Specialist report by:

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DATE: 19 June 2018

EXECUTIVE SUMMARY

Bruce Rubidge was appointed by Maxim Planning Solutions on behalf of Maquassi Hills Local Municipality to undertake a desktop Palaeontological Impact Assessment for the township development at Lebaleng Extension 6, Maquassi Hills Local Municipality on a portion of the Remaining Extent of Portion 8 of the farm Oersonskraal No. 207-HO west of Makwassie in Northwest Province

Most of the area is underlain by Precambrian rocks of the Ventersdorp Supergroup comprising the Makwassie, and Allanridge formations.

As the Precambrian Ventersdorp Group is of mostly of igneous origin and is not known to host fossils it is highly unlikely that palaeontological heritage will be affected by the proposed township development.

If in the unlikely event that fossils are exposed in overlying Quaternary sediments, which may be present in the area, in the course of the proposed development, a qualified palaeontologist must be contacted to assess the exposure for fossils so that the necessary rescue operations are implemented.

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Introduction and Brief

A Palaeontological Impact Assessment was requested by Koot Raubenheimer of Maxim Planning Solutions on behalf of the Maquassi Hills Local Municipality. The development is the proposed township Lebaleng Extension 6 on a portion of the Remaining Extent of Portion 8 of the farm Oersonskraal No. 207-HO west of Makwassie in Northwest Province (Figure 1). The proposed development comprises a total area of 45.14 hectares.

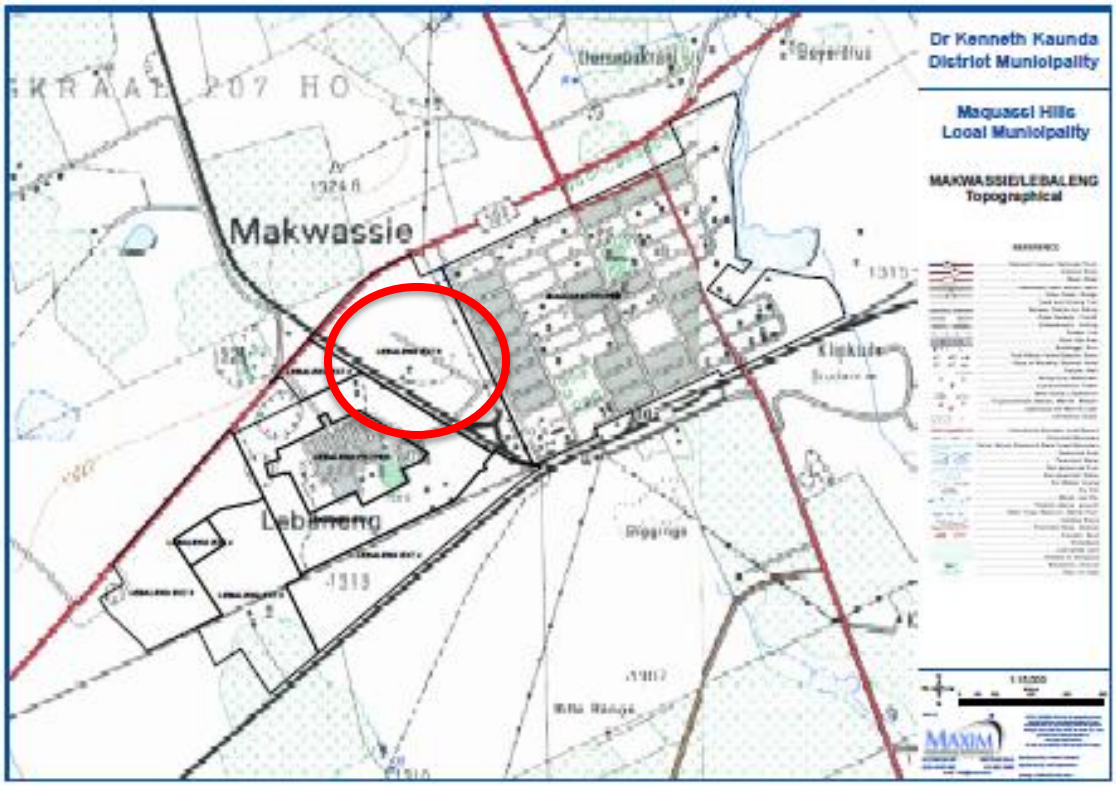

Figure 1: Topographic map (Sheet 2725BD). The proposed township Lebaleng Extension 6 is encircled in red.

Legislative framework

The Department of Environmental Affairs (DEA) through the National Environmental Management Act (NEMA Act 107 of 1998) requires that developers apply to the competent authority for approval of the proposed development as more than 1 hectare of indigenous vegetation is to be removed (Listing Notice 1 of the EIA regulations).

National Heritage is protected by the South African Heritage Resources Act (Act No 25) of 1999. Developers are required to submit development plans to SAHRA for approval. These plans must include documentation detailing the expected impact that the development will have on national heritage.

Categories of heritage resources recognised as part of the National Estate in Section 3 of the Heritage Resources Act include:

- Geological sites of scientific or cultural significance
- Objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, material, meteorites and rare geological specimens.
- Objects with the potential to contribute to understanding South Africa's natural or cultural heritage.

Accordingly a Heritage Impact Assessment (HIA) is required to assess the possible impacts of a proposed development on archaeological and palaeontological heritage. This report addresses the palaeontological aspects of the HIA as part of the Environmental Management Plan (EMP).

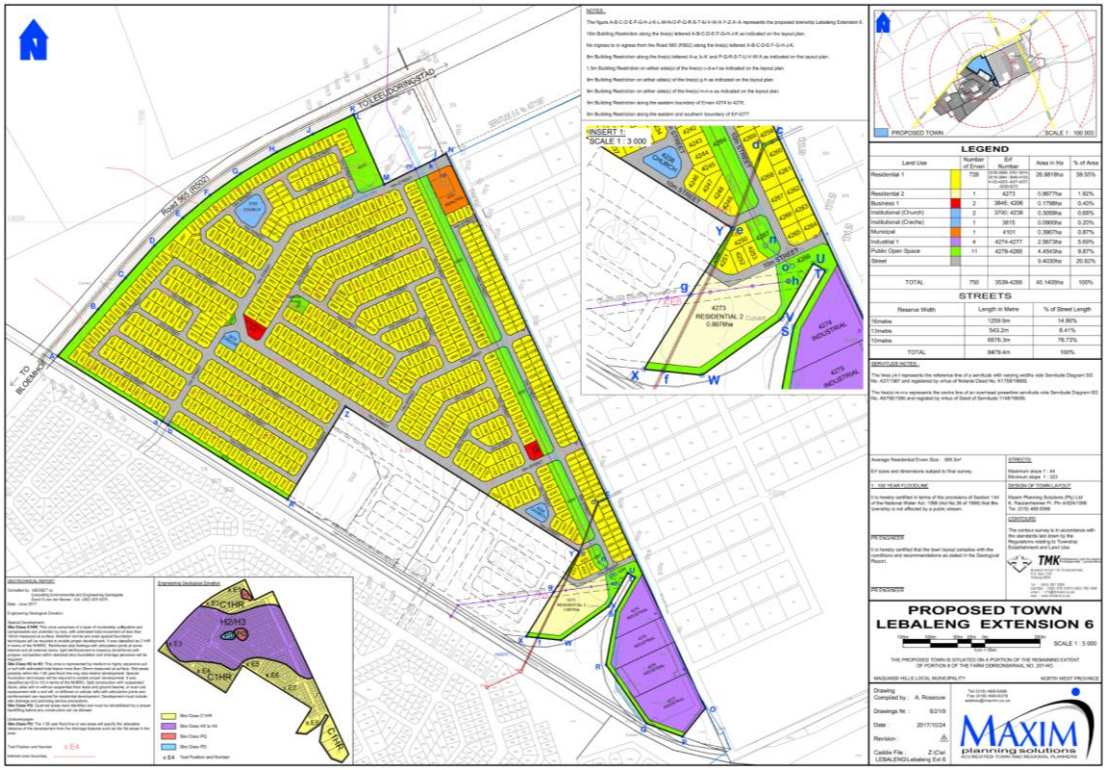

Figure 2: Plan layout of the proposed Lebaleng Extension 6

Details of the study area

The study area of the Lebaleng Extension 6 (Figure 2) township development is located in Northwest Province on a portion of the Remaining Extent of Portion 8 of the farm Oersonskraal No. 207-HO west of Makwassie.. The study area is covered by the 1:50 000 topographical map Sheet 2725BD (Figure 1). The proposed development area covers 45.14 hectares

The main infrastructure expansion is associated with the layout of a new township which will be developed and will include Residential, Business, Institutional and Public Open Space erven as well as streets. With regard to services infrastructure, the proposed township area will be supplied with potable water. All sewerage generated in Lebaleng is from a full waterborne system.

Geological Setting

Most of the area is underlain by Precambrian rocks of the Ventersdorp Group and includes the Makwassie (in the north) and Allanridge (in the south). The igneous Makwassie Formation comprises mainly quarts-feldspar porphyries and tuffaceous beds. The overlying igneous Allanridge Formation comprises mainly amygdaloidal lava, porphyritic lava and pyroclastice rocks. The geological map indicates that unconsolidated Quaternary alluvial deposits may be present but these are not indicated on the geological map (Figure 3).

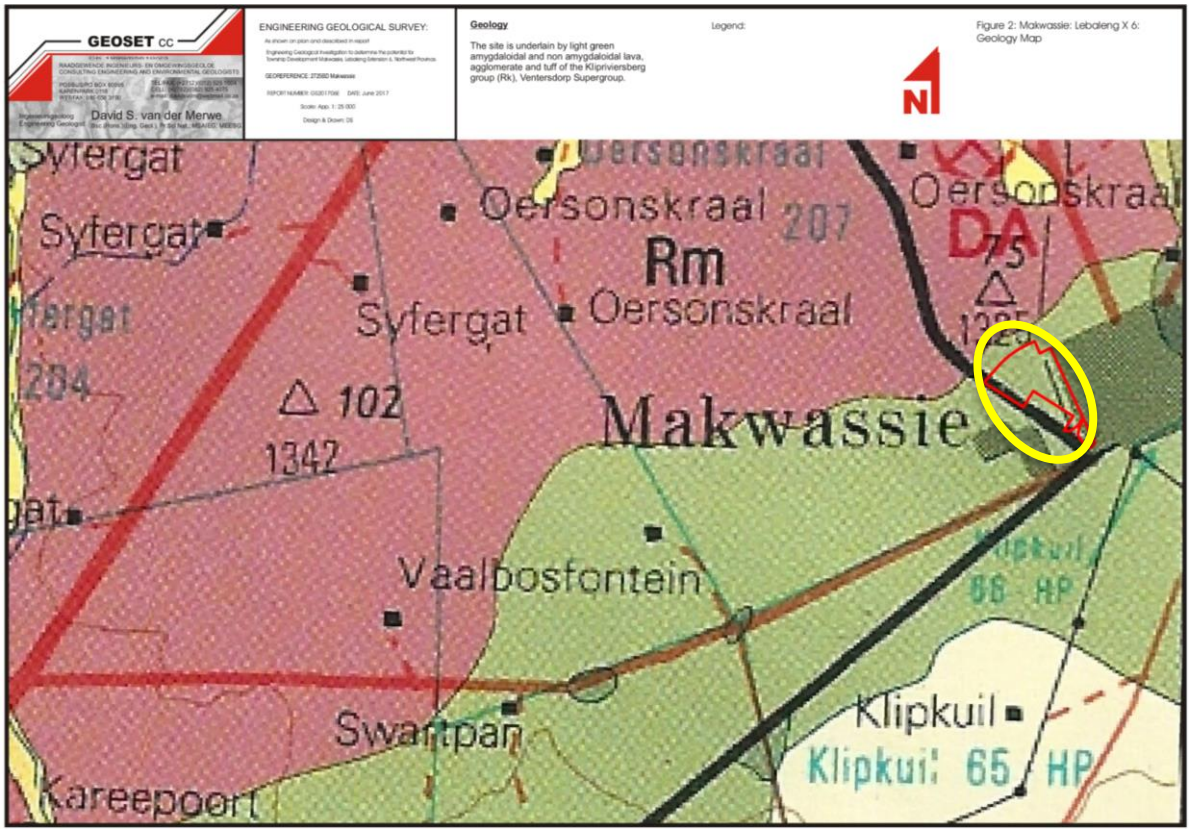

Figure 3: Geological map (2724 Christiana) showing the position of the study locality in relation to the regional geology (refer township area outlined in red within yellow circle). Ventersdorp Supergoup includes Ra – Allanridge Formation in green, Rm Makwassie Formations in maroon.

Palaeontological Heritage

As the Precambrian Ventersdorp Supergroup Group is of largely of igneous origin and is not known to host fossils it is highly unlikely that palaeontological heritage will be affected by the proposed township development. If there are unconsolidated Quaternary alluvial sediments in the area they could possibly host fossils of Quaternary-aged animals and plants. As these deposits are not consolidated it is very unlikely that any fossils will be present.

Methodology

Because the study area is underlain by Precambrian rocks of low palaeontological sensitivity a desktop Palaeontological Impact Assessment was undertaken to identify possible sensitive fossil occurrences, assess the significance of possible fossil occurrences, comment on the impact of the proposed development, and to make mitigating recommendations.

Recommendations

From the documentation supplied regarding the development it is extremely unlikely that the proposed development will have any affect on palaeontological heritage. However if fossils are exposed in possible Quaternary alluvial deposits it will create a unique opportunity to explore the area for fossils. It is thus recommended that, in the unlikely event that fossils are exposed as a result of construction activities, a qualified palaeontologist must be contacted to assess the exposure for fossils before further development takes place so that the necessary rescue operations are implemented. Depending on the nature of the fossils discovered this could entail excavation and removal to a registered palaeontological museum collection. A list of professional palaeontologists is available from South African Heritage Resources Agency (SAHRA).

Conclusion

The proposed Lebaleng Extension 6 township development area is underlain by Precambrian aged rocks of the Ventersdorp Group which in turn may be overlain by unconsolidated Quaternary aged alluvial deposits. It is extremely unlikely that fossils will be exposed as a result of the development. From a palaeontological perspective, the proposed township development should proceed but, if fossils are uncovered in the course of construction activities, the developer should immediately call in a qualified palaeontologist to assess the situation and, if necessary, undertake excavation of the fossils.

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19 June 2018