Recommendation for exemption from Phase 1 Palaeontological Impact Assessment: 11kV overhead power line and switchyard, Bethlehem, Free State Province.

Report prepared by
Palaeo Field Services, PO Box 38806, Langenhoven Park, 9330

Site: Panorama, Bethlehem

Map Ref.: 1:50 000 topographic 2828 AB Bethlehem

At present, the Bethlehem Hydro (PTY) Ltd hydroelectric plant is directly connected via a dedicated line to the Dihlabeng/Bethlehem Municipality's Panorama substation in Bethlehem, FS Province. However, Bethlehem Hydro (PTY) Ltd proposes the construction of a ±850m 11kV overhead power line and a switchyard in Bethlehem, in order to connect directly to the Eskom grid (**Fig. 1 & 2**). This will involve the following:

- A new switchyard area with a development footprint of 2000m^2 that will accommodate two buildings covering an area of approximately 20m^2 metres each;
- An access road of approximately 1 km in length and 6m in breadth.

General coordinates (**Fig. 3**):

A) 28°13'11.59"S 28°19'32.97"E

B) 28°13'29.02"S 28°19'57.25"E

The area around Bethlehem is underlain by palaeontologically sensitive sedimentary rocks of the Molteno, Elliot and Clarens Formations (Stormberg Group), with mudstones and sandstones of the Tarkastad Subgroup (Beaufort Group), mostly exposed to the east of the town. These formations are generally horizontal and in places have been intruded by palaeontologically insignificant dolerite sills and dykes, which form long interlocking ridges. The dolerite intrusions coincide with the wide-scale volcanism and outpouring of basaltic lava that covered virtually the whole of southern Africa during the early Jurassic period.

According to the SAHRIS palaeosensitivity map and 1:250 000 geological map 2828 Harrismith, the proposed power line and switchyard footprint are underlain by palaeontologically insignificant dolerite intrusions (**Fig. 4**). Aerial photographs of the footprint suggest that the area can also be considered as of low palaeontological significance with regards to the superficial residual soils capping the dolerite in places (Quaternary overburden). This is mainly due to a lack of suitable alluvial/fluvial deposits along the footprint. In my opinion this development will not negatively affect palaeontological heritage. It is recommended that the proposed development is exempt from a Phase 1 Palaeontological Impact Assessment.

DECLARATION OF DEPENDENCE

I, Lloyd Rossouw, declare that I act as an independent specialist consultant. I do not have or will not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference. I have no interest in secondary or downstream developments as a result of the authorization of this project and have no conflicting interests in the undertaking of the activity.

07 / 06 / 2018

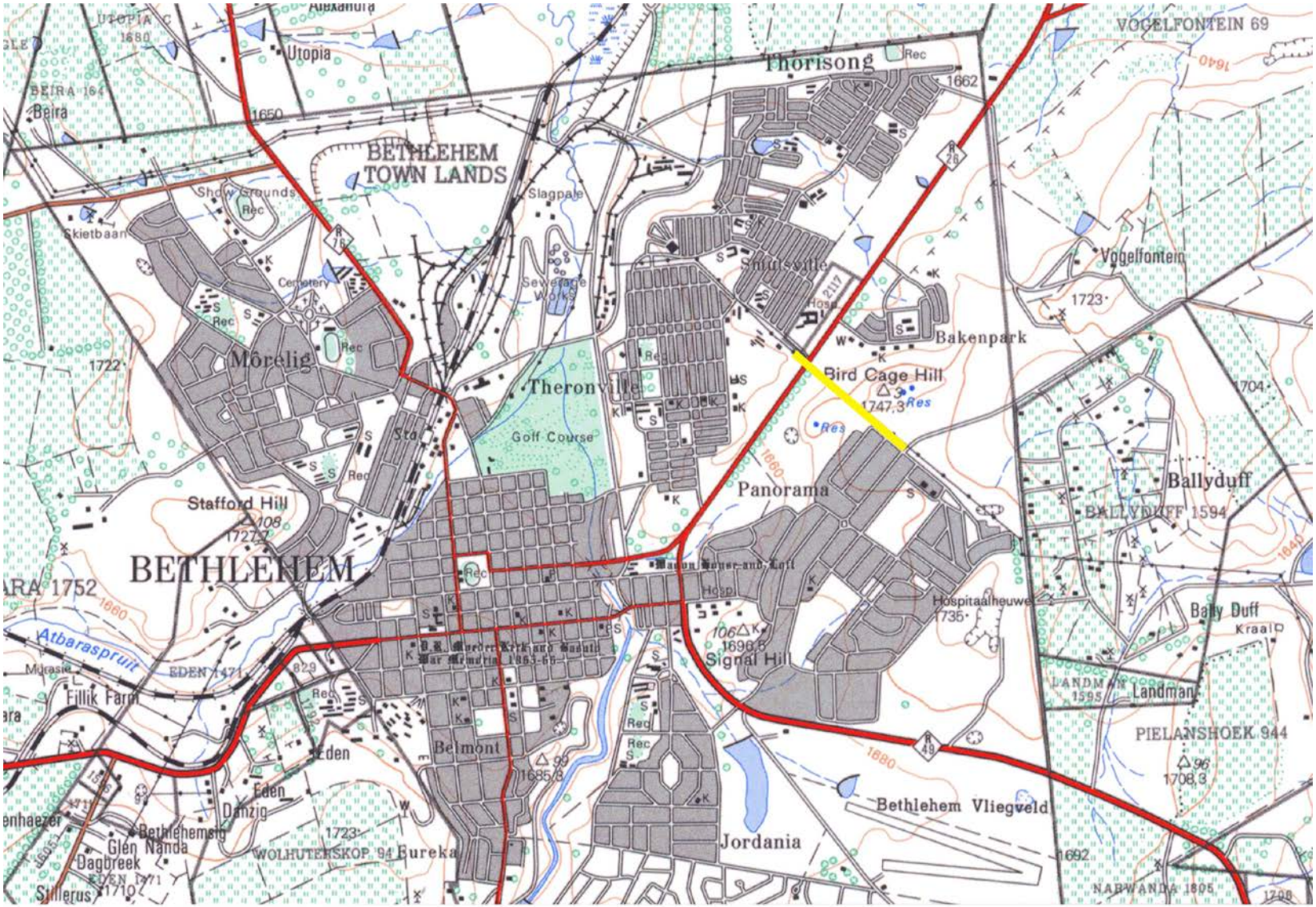

Figure 1. Map of the proposed 11kV overhead power line and a switchyard footprint (yellow line) shown on portion of 1:50 000 scale topographic 2828 AB Bethlehem.

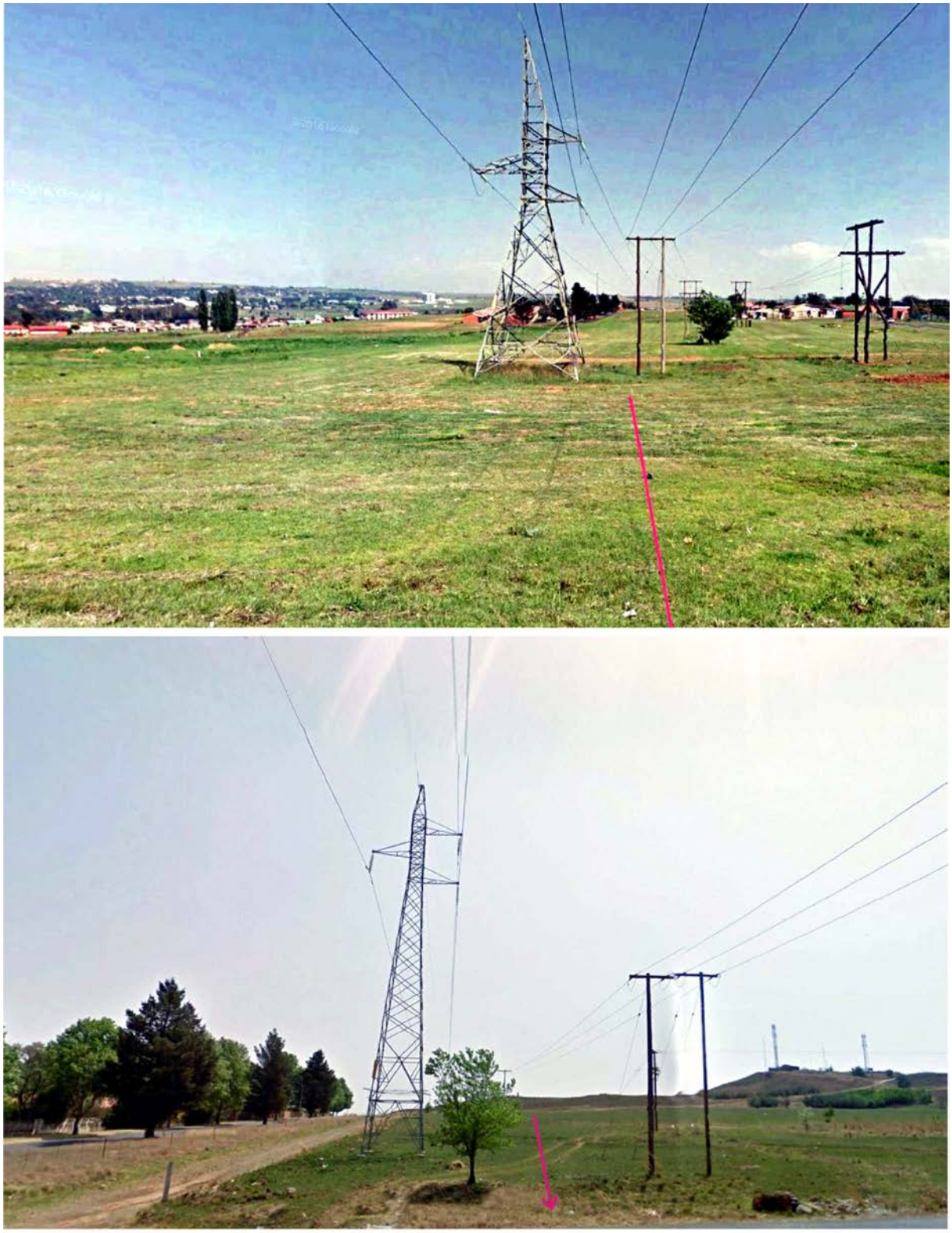

Figure 2. General view of the footprint looking northwest towards the switchyard site (above)

Figure 3. Aerial view of the proposed footprint.

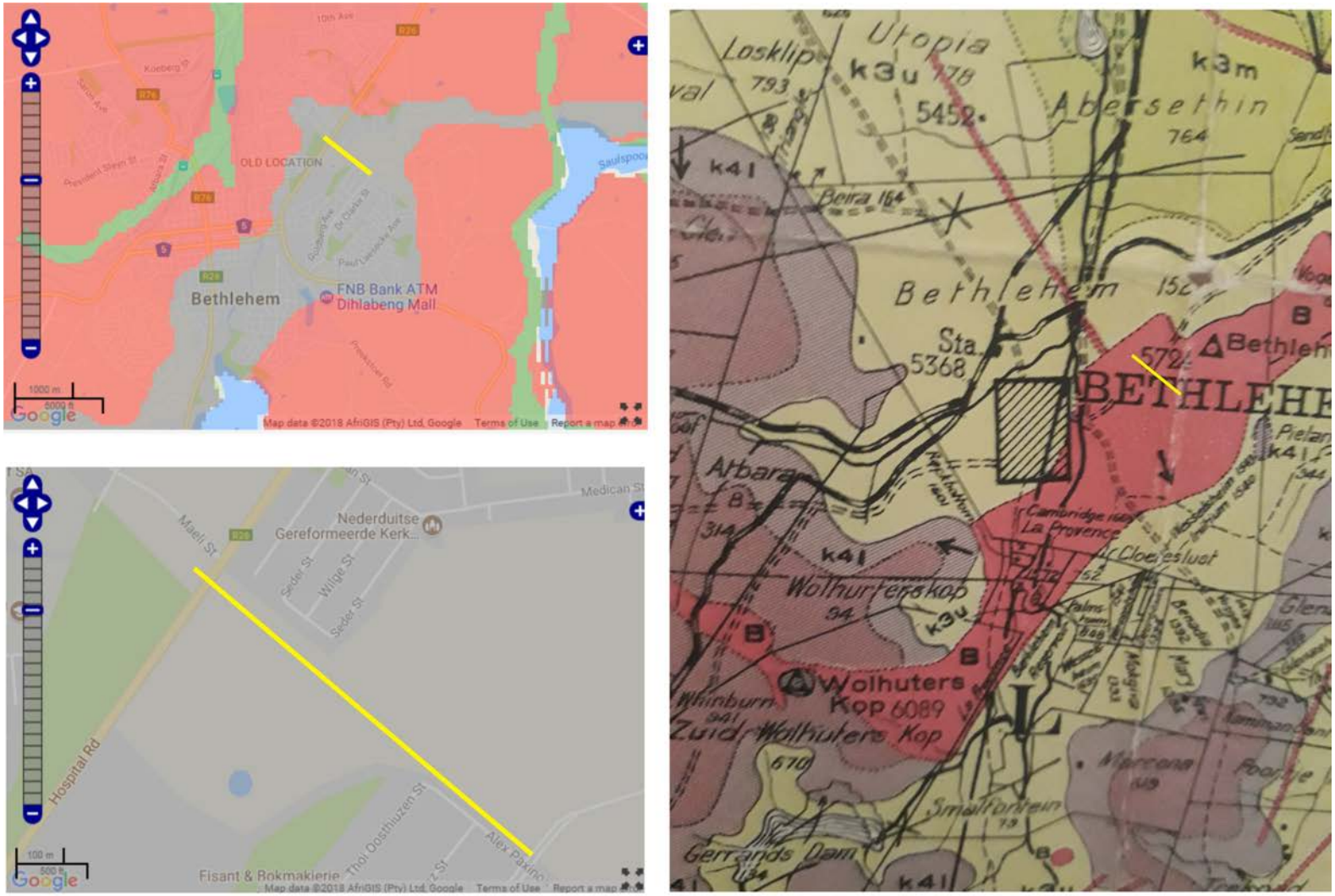

Figure 4. SAHRIS palaeosensitivity maps (left) and 1:125 000 scale geological map of Bethlehem and Kestell Area (right). The proposed development footprint is underlain by palaeontologically insignificant dolerite intrusions respectively indicated by grey and areas on maps.