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To whom it may concern
SAHRA, 111 Harrington Street,
Cape Town, 8001

RE: Palaeontological Impact Assessment for the proposed drilling operation adjacent to Spektakel and Grace S Puts 201, between Nababeep and Komaggas, west to Kammaggas northwest to and north to Harras 182/0, Northern Cape Province.

For the proposed drilling project a desktop palaeontological impact assessment has been done and the conclusion is that there is no chance of finding fossils in the affected area (see Google Earth map).

The geology of the whole region is in the Bushmanland Terrane of the Namaqualand-Natal Province and ranges in age from 2050 – 1060 Ma. The Bushmanland Terrane is composed of rocks of three age groups, the basement complex (2050 – 1700Ma; granites) called the Achab Gneiss and Gladkop Suite; the middle group of supracrustal sequences (1900, 1600 and 1200 Ma) and the slightly younger suites of syn- and late-tectonic Namaquan intrusive granitic and charnockitic rocks. The latter group comprises the Lille Namaqualand Suite (ca 1200 Ma), the Spektakel Suite (ca 1060 Ma) and the Koperberg Suite (1060-1030 Ma) (Cornell et al., 2006).

The rocks in this area are a combination of granites, aplongranite, porphyritic granite, gneisses, augen gneiss, pink gneiss, schist and quartzite. None of these rocks contain fossils as because they are ancient and volcanic in origin. Furthermore, the Bushmanland Terrane has been deformed and metamorphosed, probably in several phases for each (Cornell et al., 2006), and had there been any fossils, they would have been destroyed.

Some sections are overlain by Quaternary aged Kalahari alluvium, sand or calcrete. No fossils would be preserved in these transported sediments but occasionally in pan deposits archaeological, or rarely palaeontological, specimens are preserved, but such deposits are fairly easy to recognise and should be avoided or surveyed, and sampled if necessary with the requisite SAHRA permit. Due to the nature of this project,

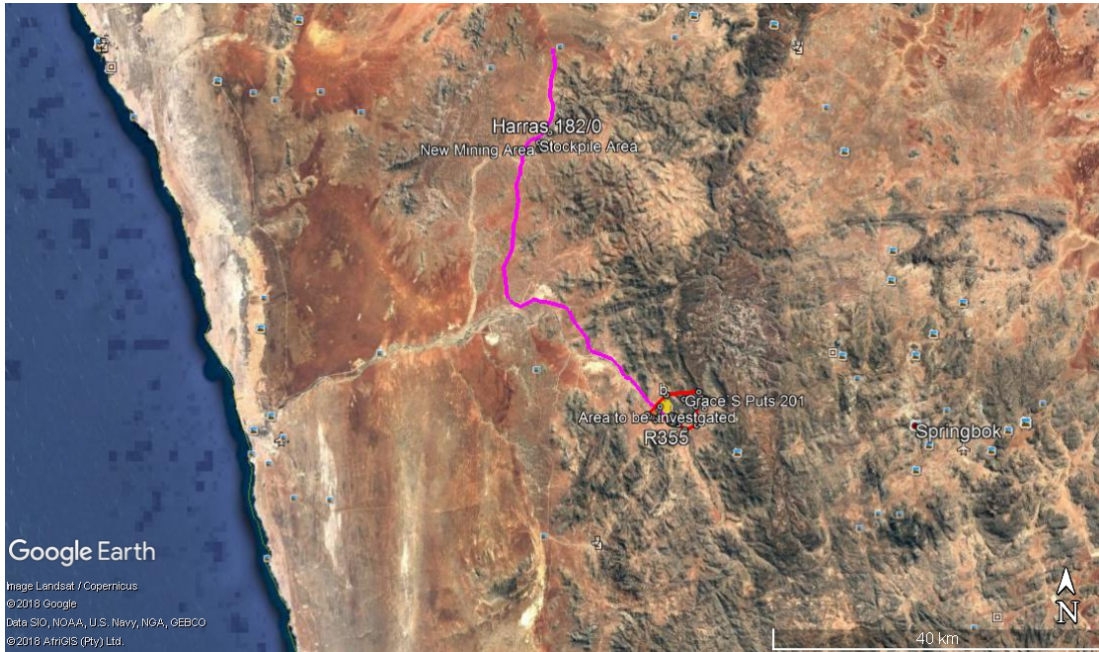


Figure 1 – Google Earth Map of the prospecting sites in Namaqualand with Spektakel and Grace S Puts 201 in the south and Harras 182/1 in the north.

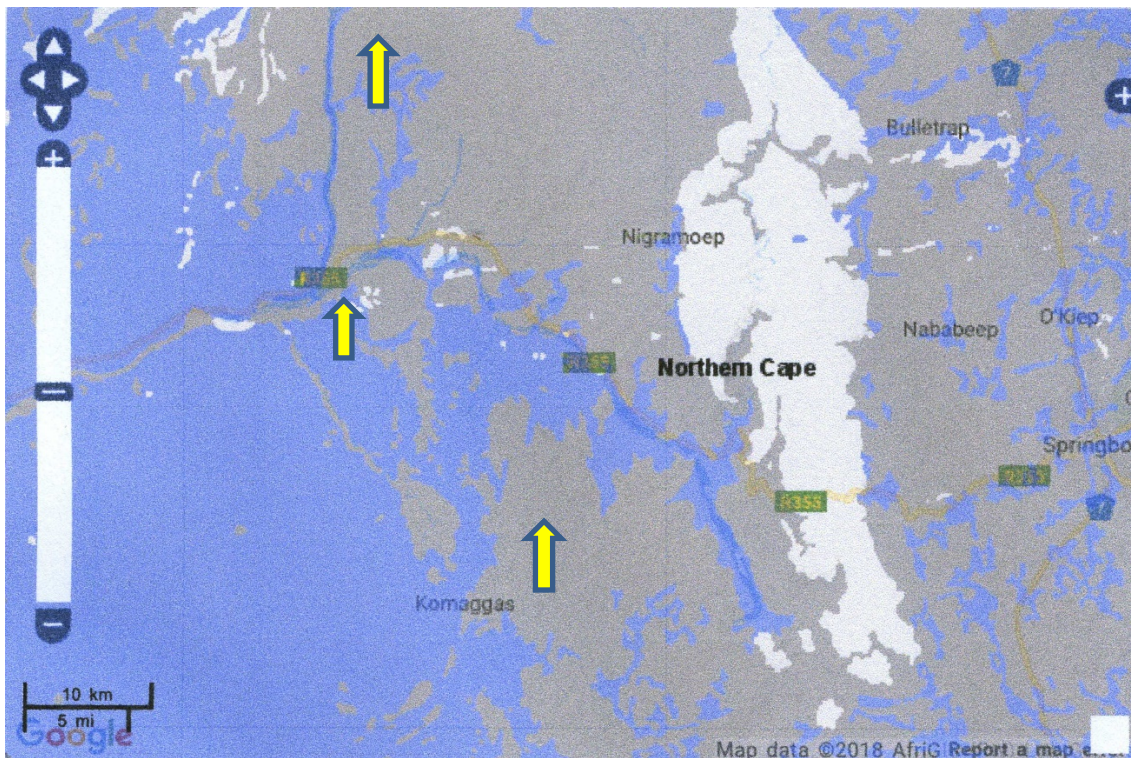


Figure 2 – Palaeosensitivity map from SAHRIS. Blue = Low – no palaeontological studies are required however a protocol for finds is required. Grey = insignificant/zero – no palaeontological study required; white = unknown – desktop study required. Yellow arrows indicate the sites.

prospecting for minerals, it is highly unlikely that the Quaternary sediments will be targeted. The SAHRIS palaeosensitivity map above indicates that the whole region is either blue or grey, which means low or insignificant to zero chance of fossils occurring there. The geology and published records of the region do not indicate the presence of any fossils.

Based on this evidence it is requested that no further palaeontological assessment be required and the project may proceed.

If you require further information please do not hesitate to contact me.

Yours faithfully

A handwritten signature in blue ink, appearing to read 'M Bamford', with a horizontal line underneath.

Prof Marion Bamford PhD
Director: ESI