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Dr Ragna Redelstorff
Heritage Officer Archaeology, Palaeontology & Meteorites Unit
South African Heritage Resources Agency
111 Harrington Street
Cape Town 8001

Dear Dr Redelstorff

RE: Request for Exemption of any Palaeontological Impact Assessment for the proposed the Section 24G Application for the rectification of the commencement of activities for the Samancor Millsell and Waterkloof Sections opencast mining, North West Province

In my capacity as a professional palaeontologist, I am requesting exemption for palaeontological impact assessment in terms of the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998) which requires that the proposed development must be preceded by the relevant impact assessment, in this case for palaeontology.

Elemental Sustainability (Pty) Ltd (Elemental) was appointed by Samancor Chrome Western Chrome Mines (Pty) Ltd. (WCM) to assist Samancor with a proposal to expand the mining operations at Waterkloof. This will entail a new opencast pit to mine chromite and associated minerals, and infrastructure such as top soil dumps and waste dumps to the west and north of the pit, respectively (Figure 1).

The new mining area is southwest of Rustenburg, North West Province, and will be adjacent to the existing Waterkloof and Millsell Mines (Figure 2).

Figure 1: Google Earth site map of the New Waterkloof Opencast Mine (yellow polygon) and infrastructure such as waste dumps (blue polygons).

Figure 2: Boundary for Millsell (green outline).

The entire area is on non-fossiliferous rocks of the Pyramid Gabbro-norite and Mathlagame Norite-anorthosite, Rustenburg Layered Suite, Bushveld Igneous Complex (Figure 3). These rocks are volcanic rocks that intruded through the Transvaal Supergroup rocks and subsequently have been metamorphosed (Cawthorne et al., 2006). Since these rocks are about 2061 million years old (Schroder et al., 2016) they pre-date the evolution of plants and animals, and they are of volcanic origin, there is no

chance of fossils of any kind, not even microbes, occurring in these rocks. This is supported by the grey colour-coding (zero palaeosensitivity) in the SAHRIS map (Figure 4).

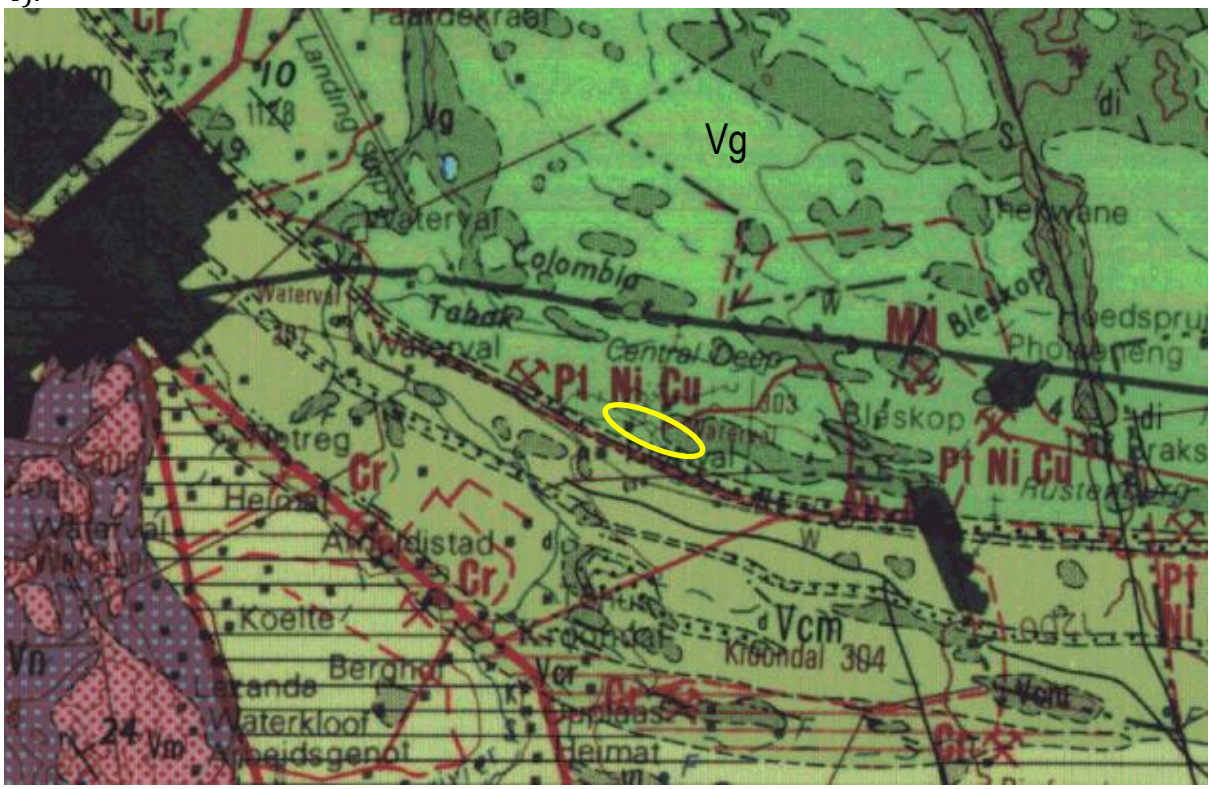

Figure 2: Geological map of the area around the Waterkloof Opencast mine (yellow oval). Abbreviations of the rock types are: Vg – Pyramid Gabbro-norite; Vcm – Mathlagame Norite-anorthosite. Map enlarged from the Geological Survey 1: 250 000 map 2526 Rustenburg.

Figure 4: SAHRIS palaeosensitivity map for the site for the Waterkloof Opencast Mine shown within the yellow rectangle. Background colours indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; blue = low; grey = insignificant/zero.

As far as the palaeontological heritage is concerned, no fossils are present and so the New Waterkloof mining operation will have no impact.

Yours faithfully

Prof Marion Bamford
Palaeobotanist; PhD (Wits 1990)

Reference cited:

Cawthorn, R.G., Eales, H.V., Walraven, F., Uken, R., Watkeys, M.K., 2006. The Bushveld Complex. In: Johnson, M.R., Anhaeusser, C.R. and Thomas, R.J., (Eds). The Geology of South Africa. Geological Society of South Africa, Johannesburg / Council for Geoscience, Pretoria. pp 261-281.

Palaeosensitivity map:
https://sahris.sahra.org.za/map/palaeo

Schröder, S., Beukes, N.J., Armstrong, R.A., 2016. Detrital zircon constraints on the tectonostratigraphy of the Paleoproterozoic Pretoria Group, South Africa. Precambrian Research 278, 362 – 393.

Declaration of Independence

This letter has been compiled by Professor Marion Bamford, of the University of the Witwatersrand, sub-contracted by Elemental Sustainability, South Africa. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision making process for the Project.

Specialist: Prof Marion Bamford

Signature: