

***NATURA VIVA cc***  
***Palaeontological Impact Assessments & Heritage Management,***  
***Natural History Education, Tourism, Research***

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**RECOMMENDED EXEMPTION FROM  
PALAEOLOGICAL IMPACT STUDY**

**Proposed upgrading of DR 3321 from National Route N14 to Uap (Upington,  
Northern Cape)**

The proposed roadworks along the DR 3321 gravel road along the north bank of the Orange River from the N14 to Uap traverse high grade metamorphic and intrusive igneous of the Vaalkoppies Group and Keimoes Suite respectively. These rocks are of Proterozoic (Precambrian) age and are unfossiliferous (1: 250 000 geology sheet 2820 Upington; Moen 2007).

The two borrow pits involved intersect sandy, calcretised granitic surface gravels. Older river gravels of the Orange River, which are potentially fossiliferous, are not involved. Red aeolian sands in the region (Gordonia Formation, Kalahari Group) are, at most, very sparsely fossiliferous - eg possible terrestrial snails, ostrich eggshell, trace fossils including termitaria and root casts (Almond & Pether 2008).

The proposed roadworks are not considered to pose a significant threat to palaeontological heritage and in my view no further palaeontological impact studies are required.

Should fossil remains be encountered during development, however, the responsible ECO should inform SAHRA at the earliest opportunity to consider possible mitigation measures.

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**REFERENCES**

ALMOND, J.E. & PETHER, J. 2008. Palaeontological heritage of the Northern Cape (draft). Unpublished report for SAHRA.

MOEN, H.F.G. 2007. The geology of the Upington area. Explanation to 1: 250 000 geology sheet 2820 Upington, 160 pp. Council for geoscience, Pretoria.

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