

RECOMMENDED EXEMPTION FROM FURTHER PALAEOLOGICAL STUDIES & MITIGATION:

PROPOSED MOUNT ROPER ROMA SOLAR PLANT, FARM MOUNT ROPER 321 NEAR KURUMAN, GA-SEGONYANA LOCAL MUNICIPALITY, NORTHERN CAPE

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1. OUTLINE OF DEVELOPMENT

Roma Energy Mount Roper (Pty) Ltd is proposing to construct a 10 MW Concentrating Photovoltaic (CPV) Energy Generation Facility, the Mount Roper Roma Solar Plant, on Farm 321 Mount Roper situated on the south side of the R31 and 13.2 km WNW of Kuruman, Ga-segonyana Local Municipality, Northern Cape (Fig. 2). The land is currently zoned for agriculture and is owned by Poper Moore CC.

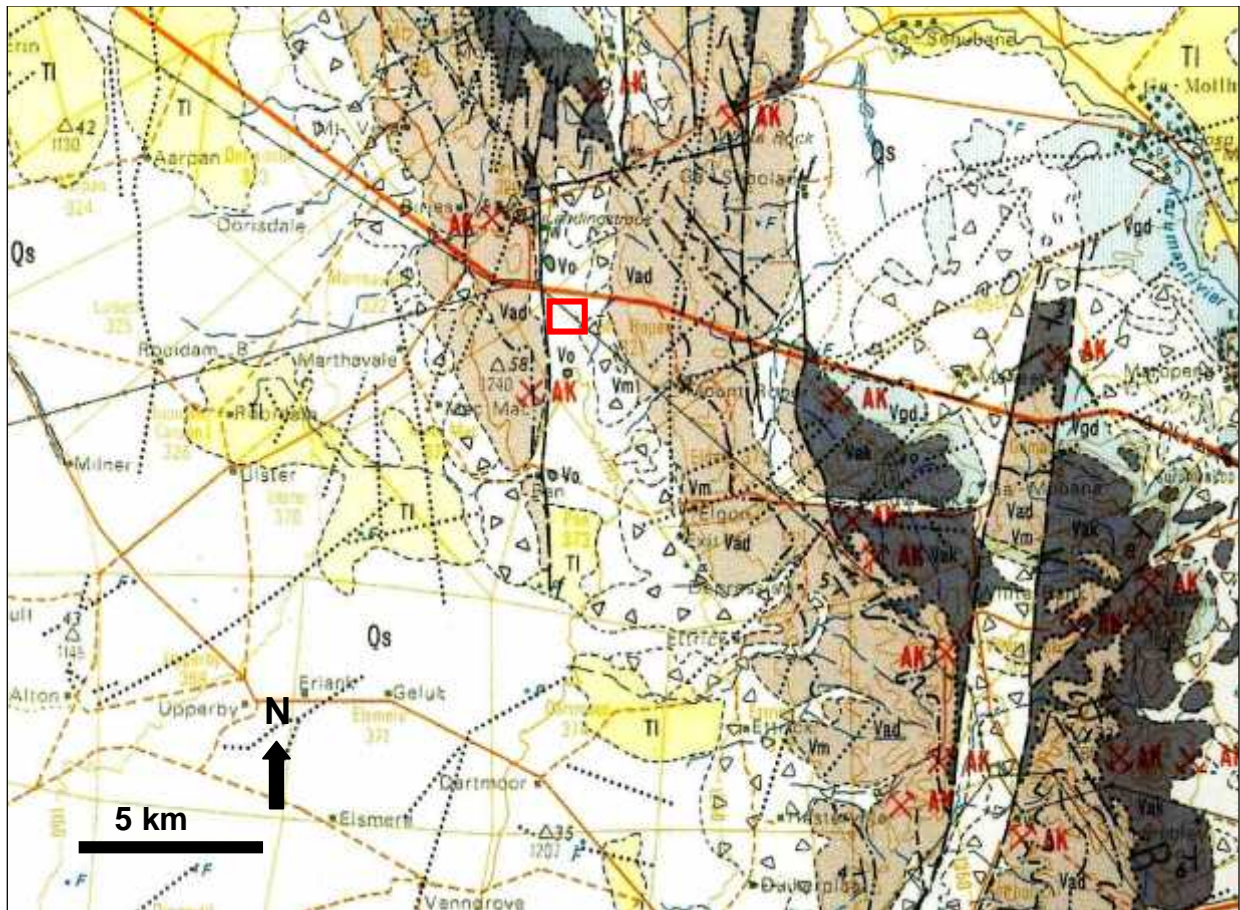
The proposed activity entails the construction of about 140 CPV solar panels with a footprint of about 20 ha. The CPV panels will be mounted on pedestals drilled and set into the ground. Extensive bedrock excavations are not envisaged, but some vegetation will need to be cleared from the site. Associated infrastructure includes a perimeter access road, single track internal access roads, trenches for underground cables, 2 to 4 transformer pads, a switching station, a maintenance shed, and a temporary construction camp. Connection with the grid will be *via* the Riries 66/11kV substation 0.75 km to the northwest on the far side of the R31.

The present palaeontological heritage comment has been commissioned by EnviroAfrica cc, Somerset West as part of a comprehensive Heritage Impact Assessment of the proposed development (Contact details: Mr Bernard de Witt, EnviroAfrica cc, P. O. Box 5367, Helderberg, 7135; 29 St James St, Somerset West; mobile: +27 82 4489991; tel: +27 21 851 1616; fax: 086203308).

2. GEOLOGICAL BACKGROUND

The proposed solar plant study area (27° 21' S, 23° 11' E) is situated in on flat terrain at c. 1200 m amsl on the floor of a shallow, N-S trending valley within the northern portion of the Kurumanheuwels between Kuruman and Hotazel, Northern Cape. The site lies on the south side of R31 road connecting these two settlements.

The geology of the study area near Kuruman is shown on the 1: 250 000 geology map 2722 Kuruman (Council for Geoscience, Pretoria; Fig. 1 herein). A very short sheet explanation is printed on the map. The proposed Mount Roper Solar Plant is underlain at depth by ancient Precambrian sediments of the **Asbestos Hills Subgroup** (also referred to in the older literature as the Asbesheuwels Subgroup). This succession forms the upper part of the Late Archaean to Early Proterozoic **Ghaap Group (Transvaal Supergroup)** of the Griqualand West Basin (Ghaap Plateau Sub-basin). Useful reviews of the stratigraphy and sedimentology of these Transvaal



The Precambrian basement rocks within the study area are mantled with various **superficial deposits** that are mapped as rubble (triangular symbols in Fig. 1), probably consisting of an admixture of colluvium, downwasted surface gravels and coarse alluvium of intermittently flowing streams, as well as **wind-blown sand (Qs)**. These deposits are mainly of local origin and are generally young (Quaternary to Recent).

3. PALAEOLOGICAL HERITAGE

The deep water BIF facies of the Asbestos Hills Subgroup (Kuruman and Daniëlskuil Formations) are not known to contain macroscopic fossils. They have not yielded stromatolites which are normally restricted to the shallow water photic zone since they are constructed primarily by photosynthetic microbes. However, there are several reports of microfossils from cherty sediments within the Kuruman Formation, just below the Daniëlskuil Formation, according to MacRae (1999) and Tankard *et al.* (1982 – see refs. therein by Fockema 1967, Cloud & Licari 1968, La Berge 1973. N.B. the stratigraphic position of these older records may require confirmation). It is likely that cherts within the Daniëlskuil Formation also contain scientifically interesting Early Proterozoic microfossil assemblages.

The superficial rock rubble and wind-blown sands mantling the Precambrian bedrocks are unlikely to be fossiliferous.

The palaeontological sensitivity of the Mount Roper Solar Plant study area is accordingly assessed as LOW.

4. CONCLUSIONS & RECOMMENDATIONS

The overall fossil heritage impact significance of the proposed Mount Roper Roma Solar Plant development is considered to be LOW because:

- The study area is underlain by Precambrian banded iron formations of low palaeontological sensitivity (microfossils only);
- The Precambrian rocks are deeply buried beneath unfossiliferous rock rubble and wind-blown sands;
- Extensive, deep bedrock excavations are unlikely to be involved in this sort of solar park project.

It is therefore recommended that exemption from further specialist palaeontological studies and mitigation be granted for this solar plant development.

Should any substantial fossil remains (e.g. vertebrate bones and teeth, shells, petrified wood) be encountered during excavation, however, these should be reported to SAHRA for possible mitigation by a professional palaeontologist.

5. REFERENCES

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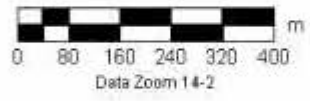
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