B RUBIDGE SPECIALIST REPORT

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Attention Mr Gary Brown
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Report on Palaeontology in area surrounding Schroda Dam

Brief:
To assess the effect of raising the dam wall height of Schroda Dam on Palaeontological heritage in the area.

Background:
Schroda Dam on the farm Schroda in the Messina district is situated on rocks of the Clarens Formation of the Karoo Supergroup. Over most of the area of the dam the current water level covers rocks of the Tshipise Sandstone Member, but to the extreme east and south east the current water level onlaps the rocks of the Red Rock Member.

The "Stormberg" rocks of the Tuli Basin comprise a lower Klopperfontein Formation which has been correlated with the Molteno Formation of South Africa, a middle Bospokpoort Formation, correlated with the upper Molteno and lower Elliot Formations of South Africa and an overlying Clarens Formation (Bordy 2000). The Clarens Formation comprises and Upper Tsipise Sandstone Formation and a lower Red Rock Member. Dinosaurs, specifically *Massospondylus* and a variety of trace fossils have been reported from the Clarens Formation (see Bordy 2000) and are most abundant in the lower Red Rock Member.

Work done:
Kitching (1992) undertook a survey of the palaeontological heritage in the area to be flooded by Schroda dam, and later Bordy (2001) undertook a detailed geological and Palaeontological study of the area for her PhD. Kitching discovered several fossils in the area which would be inundated by water, but only one was deemed worthy of excavation. This specimen is housed in the collection of the Bernard Price Institute for Palaeontology at the University of the Witwatersrand.

In July 2005 Bruce Rubidge undertook a survey of the area surrounding the dame to assess if any fossils could be in danger of flooding if the water level were raised by two metres.

The only area where fossils are likely to be affected by a rise in water level is on the south eastern side of the dam where the water onlaps onto the Red Rock Member of the Clarens Formation. In this interval most of the area is covered by alluvium, but were rock does outcrop there is no fossil bone exposed.

Slightly higher up the following fossils were observed:

5.22°11.583'/E 29°26.314'	-	skeletal elements including ribs, sections of long bone and a scapula of a souropodomorph dinosaur, most probably *Massospondylus*.
5.22°11.583'/E 29°26.322'	-	Isolated section of a vertebrate in a white sandstone layer. This is also most probably *Massospondylus*.
5.22°11.583'/E 29°26.391'	-	Transverse section through what may be part of a rauisuchid tooth, or else an oblique section through a long bone.

Recommendation:
No fossils were found in the area which will be inundated. In my opinion, none of the above material is worthy of excavation as they are all very fragmentary specimens. However, it is recommended that the first specimen be surrounded by rocks to prevent trampling by animals.

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