

Appendix I : Archaeological and palaeontological heritage reviews



ALBANY MUSEUM

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11th April 2007

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Palaeontological heritage assessment at two proposed localities - Port of Ngqura

- a. the administration craft basin area and
- b. additional container berths area.

Dear Paul

On 3rd April 2007 I spent the morning at the Port of Ngqura assessing the (potential) palaeontological heritage of the two areas under consideration. Mr Anelies Annet and Ms Renée de Klerk (Environmental Manager) kindly conducted me to the sites and provided me with the necessary background and information.

Geology – general outline

This part of the Eastern Cape coastal strip is underlain by rocks of lower Cretaceous (c.135Ma) fluvial and estuarine sediments and much younger upper Miocene and younger marine related sediments of the Algoa Group (< 12 Ma). The latter sediments reflecting repeated marine transgressions and regressions which effectively deposited a variety of marine related sediments along the coast - sediments like aeolian dune systems and high energy beach deposits.

Cretaceous Uitenhage Group (c. 135 Ma)

The Ngqura Port site is underlain by sediments belonging to the Uitenhage Group in the Algoa Basin. The Uitenhage Group is subdivided into the Eron, Kirkwood and Sunday River Formations. The Eron and Kirkwood formations represent continental river-deposited sediments while the Sundays River Formation had a distinct marine component and was most probably contemporaneously deposited in estuarine and shallow marine environments. The best and most complete exposures of all three formations occur in the Algoa Basin and it is in this basin that most of the dinosaur and plant fossil discoveries have been made. Good exposures of fossil bearing Kirkwood sediments are found mainly along the northern boundary of the basin, where sporadic outcrops of Kirkwood rocks occur over an east-west distance of c.120km, not much wider than 5km. Other (smaller) outcrops occur in the vicinity of Uitenhage, Dispatch and on the flanks of the Coega River valley.

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Locally, the Ngqura Port site is underlain by terrestrial fluvial sediments of the upper Kirkwood Formation. The contact with the overlying (contemporaneous) Sundays River Formation occurs close by to the east, in the Coega River valley. This is evidenced by the extremely good outcrops of these estuarine and shallow marine sediments that are exposed in the Coega brick quarry north of the N2 main road. Here a number fossils of different invertebrate marine species and numerous trace fossil have been recorded. No Kirkwood Formation fossils have been recovered from the Ngqura Port area and its surrounds in the past.

Algoa Group (c. 55 Ma to present)

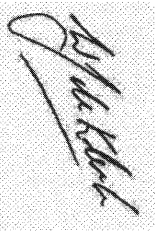
Since early Eocene times (c.55 Ma), there have been a number of marine transgressions and regressions along the southern Cape coastal belt and these episodes have effectively deposited marine related sediments along the coastal strip. Sediments include shallow marine shelly limestones, beach washed sands and gravels and aeolian sand-dune deposits. The Algoa Group sediments have effectively been deposited on top of the older Uitenhage Group as a thin veneer of marine sediments as the sea retreated to its present shoreline position. Consequently, Kirkwood rocks are best exposed in incised river valleys, like the Sundays, Bushman's and Coega River valleys.

Assessment of fossil potential at:

1. **Administration Craft Basin** – Here some of the original beach and coastline is still intact and no obvious bedrock is exposed. These modern coastal marine sediments are related to the Schermbok Formation of the Algoa Group. No obvious fossil bearing sediments were observed in this area and it is concluded that the potential of recovering any significant fossils is remote.
2. **Additional container berth area** – Here the surface sediment has been highly disturbed during the recent construction of the port. The Kirkwood Formation bedrock occurs between 14 and 26 metres below surface. It is therefore highly unlikely that any significant fossils would be recovered from this area.

I trust that the information in my report is what was required.

Yours sincerely,



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Curator, Earth Sciences

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