

This brief report has been prepared to document BAAM Pty Ltd responses to comments on the terrestrial flora and terrestrial and freshwater fauna components of the Ella Bay Integrated Resort Development EIS.

The summaries of issues and comments are those provided by White Beech Pty Ltd.

Flora and Fauna Monitoring

Specific Issue: Frog Habitat – one dry season data collection only.

Comment: Specialist wet season surveys are required to evaluate the importance of the threatened frog sites and determine the potential threats to them.

BAAM Response:

The field survey was undertaken in October 2006 during warm conditions, following a period of high rainfall (see BAAM 2006). These environmental conditions are considered important for detecting frog species. Two frog species of conservation significance were detected outside of the development zone during the survey. These being:

- The Creek Frog, *Litoria rheocola*
Status: Endangered NCA, Endangered EPBC; and
- Inelegant Frog, *Cophixalus infacetus*
Status: Rare NCA, Not Listed EPBC.

In addition, the 'Endangered' (NCA and EPBC) Australian Lacelid, *Nyctimystes dayi*, was considered to have the potential to be present, based on its ecological requirements which are similar to those of the Creek Frog.

Based on the behavior and ecological requirements, and review of wildlife database

searches, it is not likely that any other frog species of conservation significance will be present on the subject site. It is also considered unlikely that further frog surveys will detect any other populations of conservation significant frog species.

Impact assessment has taken into account the presence or likely presence of the three significant species.

Specific Issue: Marine Flora and Fauna – fish sampling methodology considered inadequate.

Comment: A more appropriate survey technique should be used. Produce a marine flora section description.

BAAM Response:

The impact assessment and recommendations (BAAM, 2007) were designed to protect and enhance the creek habitats and water quality to the greatest extent possible assuming the drainages support habitats of significance for all freshwater species.

Consultation with the Curator of Freshwater Fish at the Queensland Museum (who undertook the identifications) has indicated that, for the subject site, the combination of fish traps and dip netting is effective, given the nature of the environment. Seine nets would not have been suitable given the small size of the drainage lines, the amount of debris present and steepness of the banks. Use of an electrofisher could have been as effective but under the circumstances the techniques used were deemed adequate. Further freshwater fish surveys could be conducted to improve knowledge of species present and their habitat requirements for rehabilitation purposes. As a condition of approval, further aquatic vertebrate data collection and long term monitoring of water health could be undertaken.

No marine flora was recorded from the study area. The surface and groundwater report (Golders (2007)) indicates that the site is a freshwater system, with only occasional "outbreaks" of the interdunal wetland to Ella Bay during extended wet periods, and occasional breaching of the frontal dune by tidal waters during storm surge. The vegetation present reflects a predominantly freshwater environment.

Specific Issue: Wetlands- the role of wetland as a fish nursery and habitat for endangered flora and fauna species.

Comment: Surface water report to provide details of stream flow. Monitoring the migration of fish species and role as a 'fish nursery'.

BAAM Response: It is understood that 10% of the Development Zone is within the catchment of the Ella Bay Wetlands (WTQWHA) which constitutes less than 5% of the wetlands catchment area (Golders, 2007). While research into the relationship between the relevant portion of the development site and the wetlands for aquatic species is necessary for planning and monitoring purposes, planning at this stage should ensure the complete protection and enhancement of the subject drainage lines and water quality and quantity leaving the site and entering the wetland. A redesign of the Master Plan to mitigate potential impacts has been undertaken, with the portion of the development that occurs within the wetland catchment being occupied by an organic golf course, with the residential component being relocated further south. Surface water from the golf course can be monitored and managed to achieve the required water quality and quantity guidelines.

Specific Issue: Other fauna surveys

Comment: Supplementary surveys should be carried out during the November-July period and should include search effort for aquatic vertebrate species.

BAAM Response: Further freshwater fauna surveys could be conducted as part of an approval condition to improve knowledge of species present and their habitat requirements for rehabilitation purposes. The data collected, preferably over a range of seasons and conditions, would form the basis of a long-term monitoring program for waterway health. In the absence of more detailed information, the recommendations of BAAM (2007) were aimed at protecting and enhancing the creek habitats and water quality to the greatest extent possible assuming that the drainages support habitats of significance for all freshwater species. The presence of Platypus is not considered likely.

A separate flora and fauna report for the road is in preparation.

Other Fauna Issues

Specific Issues: Beach Stone-Curlew

Comment: A management strategy should be developed to limit access impacts on Beach Stone-Curlew.

BAAM Response: As a condition of development, an assessment should be carried out to determine the number and significance of local and regional pairs of the Beach Stone Curlew. The subsequent development of a Management Plan would guide detailed planning of beach access and pedestrian movement. It is noted that the proponent has advised that the current design includes limited walking tracks to the beach.

Specific Issues: Turtles and other Coastal Fauna

Comment: More work on the assessment and impact on the local turtle population.

BAAM Response: While no potential White-bellied Sea-eagle nests were observed on site during the time of survey, it is possible that the larger trees present on

the site could be used for nesting purposes in the future. None of these larger trees are proposed to be removed for the proposed development, although the species is known to be discouraged from nesting by human activity. Given the available, undisturbed habitat in the local area, the alienation of the development area for White-bellied Sea-eagles will not threaten the long term viability of the species locally, regionally or nationally.

The potential for the beach area for turtle nesting was examined (BAAM 2006) and found to be less than ideal, although the possibility of occasional turtle nesting in this area was not discounted. The commencement of a monitoring program was recommended - which should contribute to development design if necessary. BAAM (2006) did not address purely marine species, which should be the subject of assessment by marine experts.

Specific Issue: Dead Trees

Comment: *Discuss dead trees and limbs in supplementary EIS.*

BAAM Response: Within the vegetation Management Plan the proponent advised that no existing vegetated area will be disturbed except for weed removal where necessary. Development is planned only for cleared areas.

Impacts on Marine Plants

Specific Issue: Impact on Marine Flora

Comment: *Marine fauna section to provide species details. The impact of a safe swimming zone to be assessed.*

BAAM Response: All marine plants in Queensland are protected. Section 8 of the Fisheries Act 1994 defines marine plants as the following:

- A plant (a tidal plant) that usually grows on or adjacent to, tidal land; whether it is living or dead, standing or fallen.

- Material of a tidal plant or other plant material on tidal land.
- A plant, or material of a plant, prescribed under a management plan or regulation to be a marine plant.

This definition includes (but is not limited to) mangroves, seagrass, saltcouch, and samphire vegetation species. If it is proposed to disturb any marine plants an approval is required from DPI&F. It was noted in 3D Environmental (2006) that the presence of *Hibiscus tiliaceus* generally indicates occasional tidal inundation or slightly saline surface water. The Regional Ecosystem that was recorded as supporting *Hibiscus tiliaceus* was RE 7.2.8, which is outside of any tidal influence.

Melaleuca quinquenervia was recorded from RE 7.2.9 and from mapped vegetation community 33. Once again, tidal inundation is unlikely or extremely rare in these locations and the presence of the species is related to freshwater inundation. *Barringtonia racemosa* was recorded with RE 7.2.9 and from mapped vegetation communities E3, Ra, 3a and 33 within areas that are not known to be subject to tidal inundation. The species is most often found on the landward edge of wet tropical mangrove forests, often growing upstream in rivers. It is not confined to tidal areas.

Golder Associates (2007) found that electrical conductivity within the wetland swale was higher than measured in surface water and groundwater to date within the Site, however the results were within or just above the freshwater aquatic ecosystem guidelines and significantly below seawater concentrations. This suggests that freshwater conditions could be predominant within the wetland swale located behind Southern Ella Bay Beach Dune during and immediately following 'wet' season periods.

Vegetation

Specific Issues: Regional Ecosystems

Comment: *Regional Ecosystem mapping issues should be sorted out.*

BAAM Response: Vegetation mapping was based on pre Cyclone Larry aerial photography. The mapping was undertaken to represent the extent and composition of the vegetation communities pre cyclone. The vegetation consultants are satisfied that the mapping as

provided is a thorough representation of pre-cyclone conditions.

Specific Issues: Weed Eradication

Comment: *Address weed eradication methods.*

BAAM Response: It is understood that this would be part of the Weed Management Plan.